

الجانب العملي لشهادات MCSA

2008 / 2012 / 2016



Microsoft
CERTIFIED
IT Professional

MCITP | Eng-Mahmoud Sarhan



إعداد أ. عبدالسلام صالح الراشدي
2019

المقدمة

بسم الله والصلاة والسلام علي أفضل خلق الله سيدنا محمد وعلى آله وصحبه اجمعين. نقدم لكم هذا الكتاب الذي هو بعنوان الجانب العملي لشهادات MCSA 2008_2012_2016 , حيث يحتوي هذا الكتاب على أهم الجوانب العملية والنظرية الخاصة بهذه الشهادة المقدمة من شركة Microsoft.

حيث من المعلوم إن شهادة MCSA من افضل الشهادات في عالم شبكات الحاسب الالي واكثرها اقبالا وانتشارا في الاعوام الأخيرة كما هو الحال لشهادات CCNA, CCNP من شركة سيسكو, Network+, server+, من شركة Comptia, VCA, VCP من شركة VMware, وشهادة CEH,CND, من شركة C-, Council وشهادة RHCE, RHCSA من شركة linux.

لقد تم التركيز في هذا الكتاب على أنظمة التشغيل الخاصة بإدارة الشبكة windows server 2008,2012,2016 لأنها الأكثر استخداما في المؤسسات والشركات في هذه الايام , مع العلم ان شركة مايكروسوفت اصدرت النسخة الاخيرة MCSA 2019 مع وجود بعض الاختلافات البسيطة مع الإصدارات السابقة windows server 2012,2016.

تم التركيز على حوالي 80% من المواضيع الموجودة في هذه الشهادة العملاقة, مع العلم ان معظم هذه LABS تم اعدادها بمجهودي الشخصي وبعض الصور والمعلومات تم اخذها من بعض الكتب وبعض المواقع التي ذكرتها كمراجع في نهاية الكتاب. و للتغلب على صعوبة فهم بعض المواضيع المعقدة, تم عمل بعض Scenarios لكي يتم توصيل المعلومة بطريقة اسهل. ونضرا لعدم إلمام الكثير باللغة الانجليزية فقد قمنا بشرح جميع العناوين باللغة العربية والانجليزية مع التأكيد على وجوب اتقان اللغة الانجليزية في هذا المجال لكي يستطيع القارئ مواكبة جميع التطورات التي تحدث بشكل يومي.

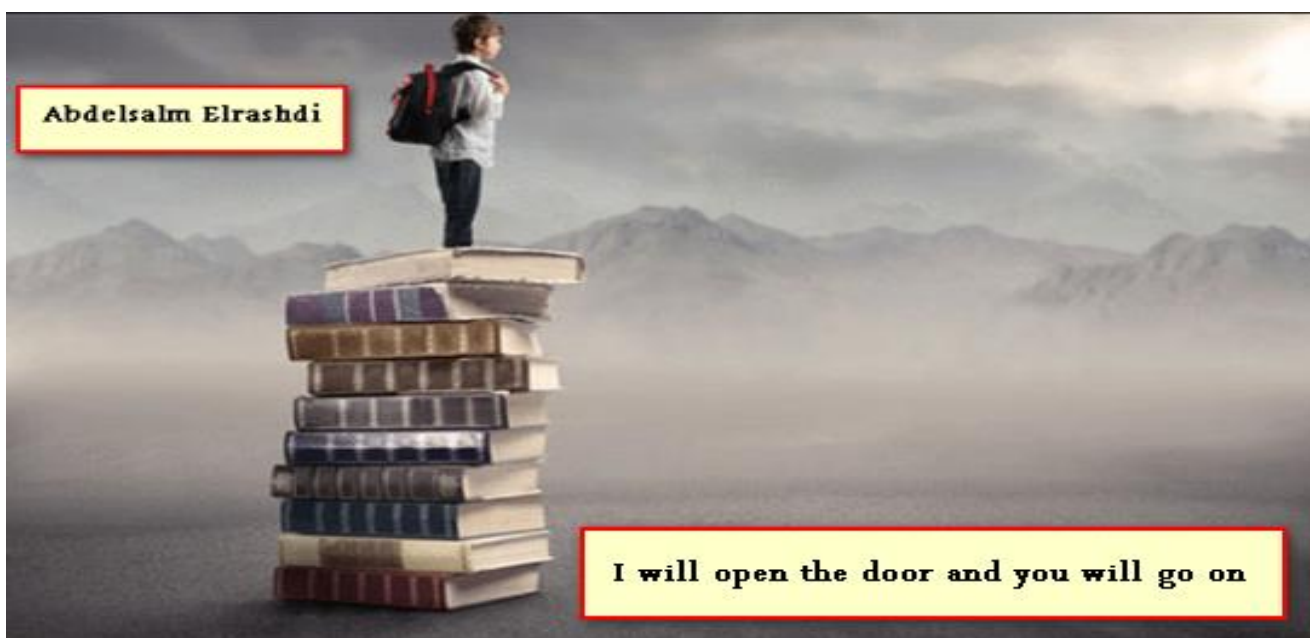
حيث يتعين على القارئ ان يكون له معلومات ولو بسيطة بأساسيات الشبكات (Network+) بالإضافة الى كيفية انشاء أنظمة تشغيل افتراضية, لان جميع التجارب العملية سوف نقوم بعملها عن طريق برنامج

vmware workstation 12

كم اود ان اشكر زميلي وصديقي المهندس **احمد جعفر** على تصميم الغلاف الخارجي للكتاب.

وفي الختام نسأل الله أن ينفع بهذا الكتاب الجميع وان يجعل هذا الكتاب بداية جيدة لكل ما يريد ان يشق طريقه في عالم شبكات الحاسوب وانظمة تشغيل الشبكات الخاصة بميكروسوفت , وليعذرني القارئ العزيز إن لاحظ وجود أي أخطاء املائية او لغوية فأني في النهاية إنسان أخطئ وأصيب.

ومن لم يذق مرَّ التعلم ساعة ، تجرَّع ذلَّ الجهل طولَ حياته #الشافعي



معلومات عن المؤلف

- عبد السلام صالح الراشدي بنغازي ليبيا .
- ماجستير في علوم الحاسوب computer science من أكاديمية الدراسات العليا بنغازي سنة 2012 بمعدل 3.23 من 4 .
- Abdelsalam.elrashdi@gamil.com
- شهادات , MCSA , MCITP , MCTS , CCNA ,CCNP,CCNA Security,

الأعمال السابقة:-

- رئيس وحدة الشبكات في جامعة العرب الطبية .
- رئيس قسم الشبكات بمركز المعلومات والتوثيق في جامعة بنغازي.

العمل الحالي:-

- رئيس قسم الشبكات في المعهد العالي للتقنيات الحاسوب بنغازي.
- عضو مؤسس لشركة التقنية الافتراضية للتقنية المعلومات VT Company.
- متعاون في قسم IT جامعة بنغازي ,الجامعة الدولية ,جامعة البحر المتوسط.

الكتب السابقة

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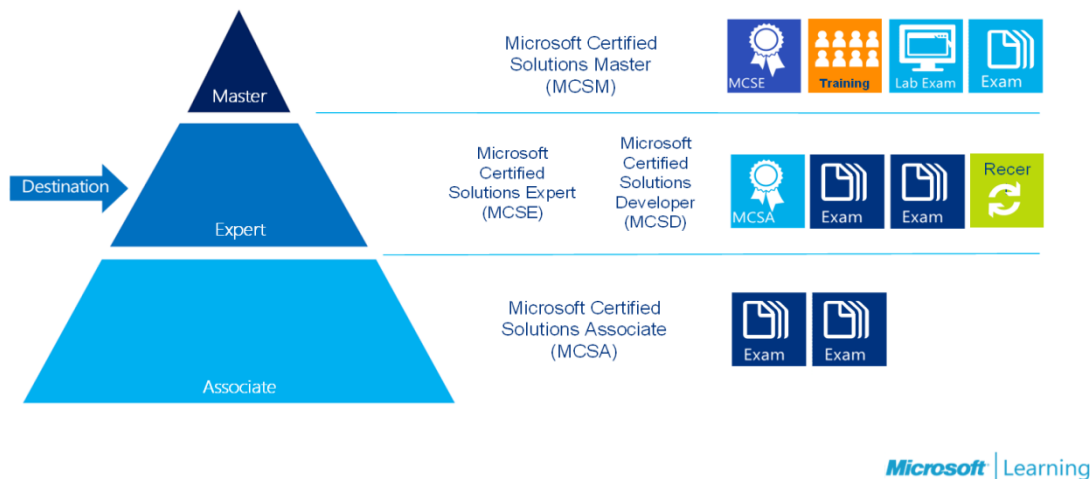
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1- Microsoft Certifications

أهم شهادات شركة مايكروسوفت في عالم شبكات الحاسب الآلي

New Microsoft Certifications



1.1- Microsoft Certified System Administrator 2003



To obtain this certificate you must pass 4 exams

- Exam 70-270 Installing, Configuring, and Administering Microsoft Windows XP Professional.

- Exam 70-290 Managing and Maintaining a Microsoft Windows Server 2003 Environment.
- Exam 70-291 Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure Sponsored.
- Exam 70-227: Installing, Configuring, and Administering Microsoft Internet Security and Acceleration (ISA) Server 2000 Enterprise Edition.

1.2-Microsoft certified Systems Engineer

- Exam 70-293: Planning and Maintaining a Microsoft Windows Server 2003 Network Infrastructure
- Exam 70-294: Planning, Implementing, and Maintaining a Microsoft Windows Server 2003 Active Directory Infrastructure.
- Exam 70-290 Managing and Maintaining a Microsoft Windows Server 2003 Environment.
- Exam 70-291 Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure Sponsored.

Select one of the following 2 exams

- Exam 70-210: Installing, Configuring, and Administering Microsoft Windows 2000 Professional.
- Exam 70-270: Installing, Configuring, and Administering Microsoft Windows XP Professional.



1.3- MCITP Server Administrator 2008



To obtain this certificate you must pass 3 exams

- Exam 70-640 TS: Configuring Windows Server 2008 Active Directory.
- Exam 70-642 TS: Configuring Windows Server 2008 Network Infrastructure.
- Exam 70-646 PRO: Server Administrator, Windows Server 2008.

1.4-MCITP Enterprise Administrator 2008



- Exam 70-640 TS: Configuring Windows Server 2008 Active Directory.
- Exam 70-642 TS: Configuring Windows Server 2008 Network Infrastructure.
- Exam 70-643 windows server 2008 applications infrastructure, configuring .
- Exam 70-680 windows seven configuration.
- Exam 70-647 windows server 2008, enterprise administration.

1.5-Microsoft Certified Solutions Associate 2008



- Exam 70-640 | Windows Server 2008 Active Directory, Configuring.
- Exam 70-642 | Windows Server 2008 Network Infrastructure, Configuring.
- Exam 70-646 | Windows Server 2008, Server Administrator.

1.6- MCSA: Windows Server 2012



- Exam 70-410 | Installing and Configuring Windows Server 2012.
- Exam 70-411 | Administering Windows Server 2012.
- Exam 70-412 | Configuring Advanced Windows Server 2012 Services.

1.7- MCSE Microsoft Certified Solutions expert 2012

- Exam 70-410 | Installing and Configuring Windows Server 2012.
- Exam 70-411 | Administering Windows Server 2012.
- Exam 70-412 | Configuring Advanced Windows Server 2012 Services.
- Exam 70-413 Designing and Implementing a Server Infrastructure.
- Exam 70-414 Implementing an Advanced Server Infrastructure.

1.8- MCSA Windows Server 2016 exam



- Exam 70-740 Installation, Storage, and Compute with Windows Server 2016.
- Exam 70-741 Networking with Windows Server 2016.
- Exam 70-742 Identity with Windows Server 2016.

1.9-MCSA Windows Server 2019 exam

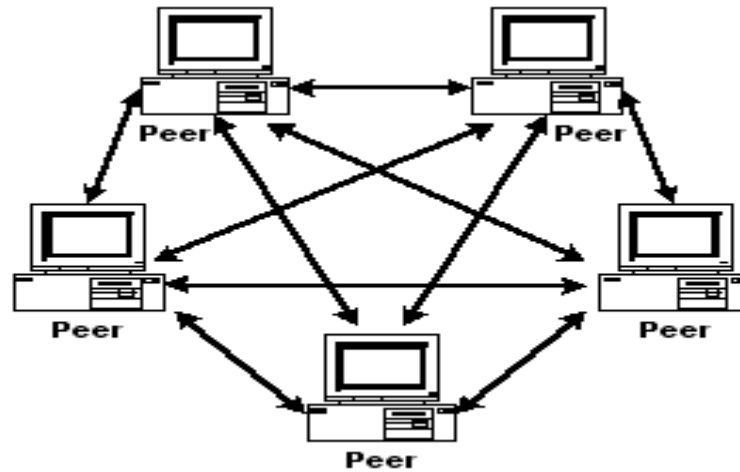


2- Configure peer to peer(workgroup) computer network

شبكة الند بالند تسمى ايضا Workgroup

تستخدم عادة في الشبكات الصغيرة عندما لا يتجاوز عدد الاجهزة عن 10 اجهزة, تمتاز بتكلفتها المنخفضة وسهولة تركيبها ولا تحتاج الي نظام تشغيل خاص واجهزتها ذات مواصفات محدودة.

من اهم عيوبها صعوبة تطبيقها في الشبكات الكبيرة وعدم توفر قدر كافي من الحماية بالإضافة الي محدودية في اعطاء الصلاحيات للمستخدمين.



A peer-to-peer network is one in many PCs share files and access to devices such as printers without requiring a separate server computer or server software.

A network of computers configured to allow certain files and folders to be shared with everyone or with selected users. Peer-to-peer networks are quite common in small offices that do not use a dedicated file server. All client versions of Windows, Mac and Linux can function as nodes in a peer-to-peer network and allow their files to be shared.

Advantages of Peer-to-peer networking over Client –Server networking are :-

- 1- It is easy to install and so is the configuration of computers on this network,
- 2- All the resources and contents are shared by all the peers, unlike server-client architecture where Server shares all the contents and resources.

- 3- P2P is more reliable as central dependency is eliminated. Failure of one peer doesn't affect the functioning of other peers. In case of Client –Server network, if server goes down whole network gets affected.
- 4- There is no need for full-time System Administrator. Every user is the administrator of his machine. User can control their shared resources.
- 5- The over-all cost of building and maintaining this type of network is comparatively very less.

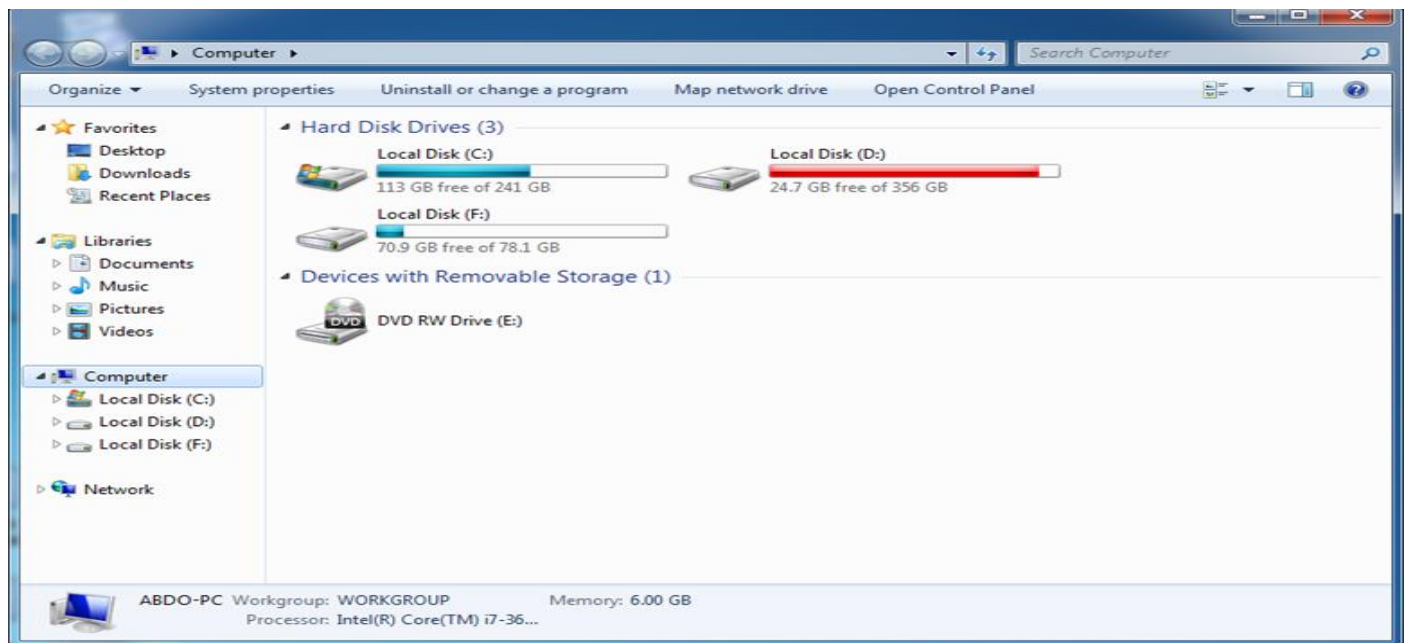
Disadvantages of Peer to peer architecture over Client Server are:-

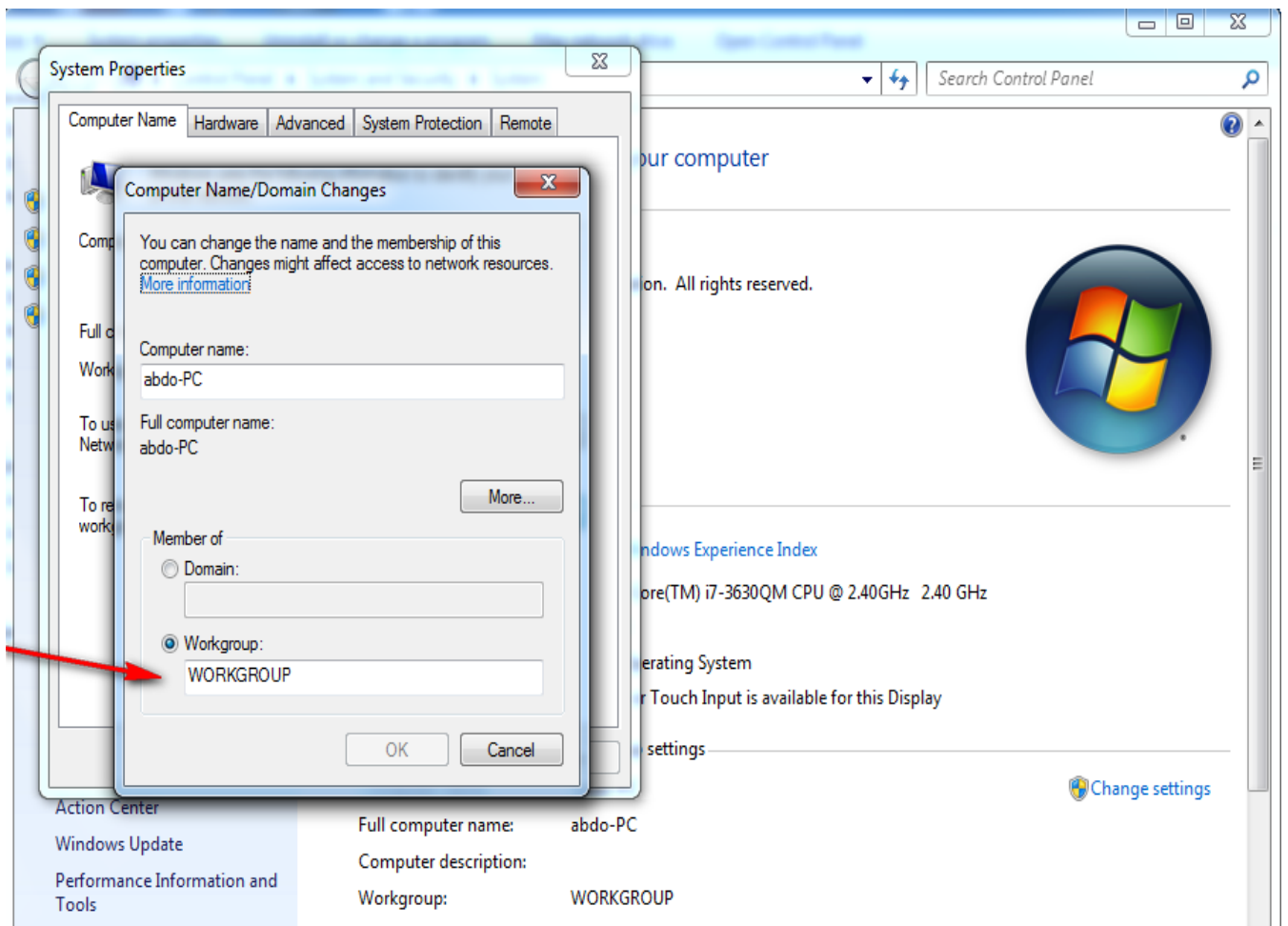
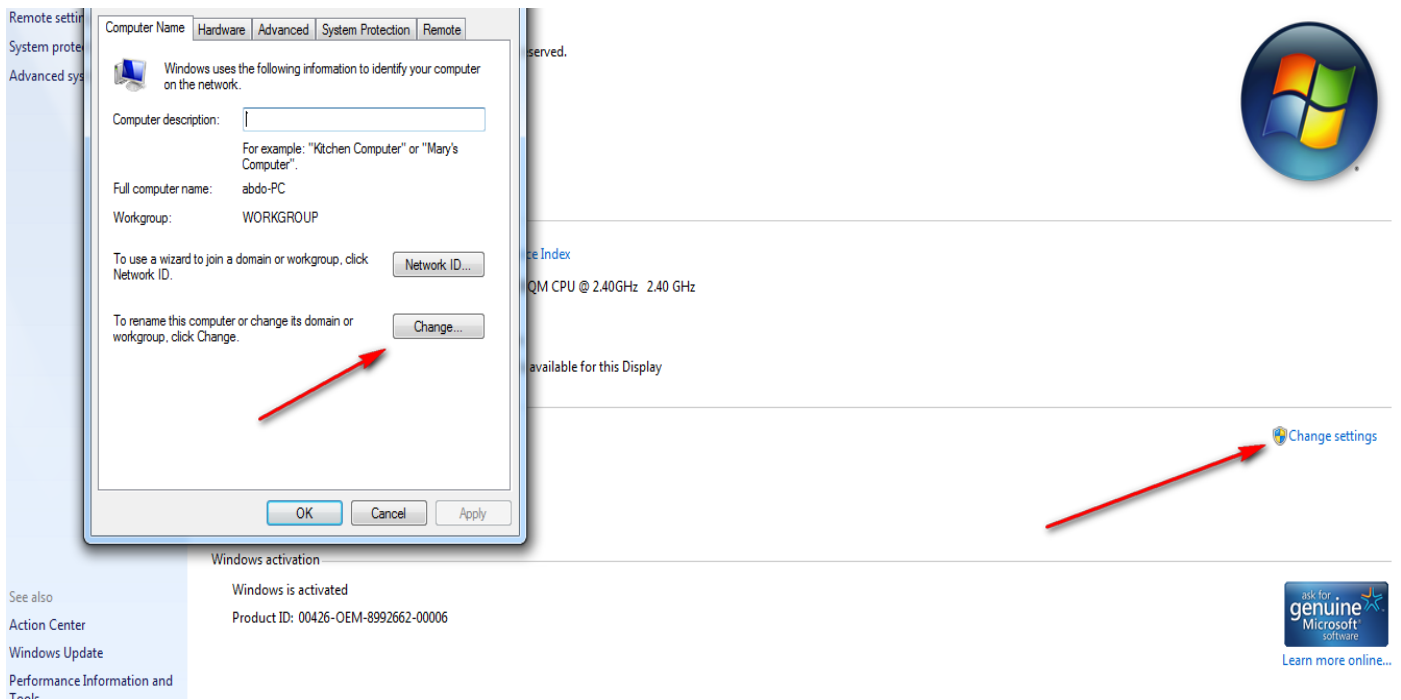
- 1- In this network, the whole system is decentralized thus it is difficult to administer. That is one person cannot determine the whole accessibility setting of whole network.
- 2- Security in this system is very less viruses, spywares, trojans, etc malwares can easily transmitted over this P-2-P architecture.
- 3- Data recovery or backup is very difficult.

Make workgroup network in small office

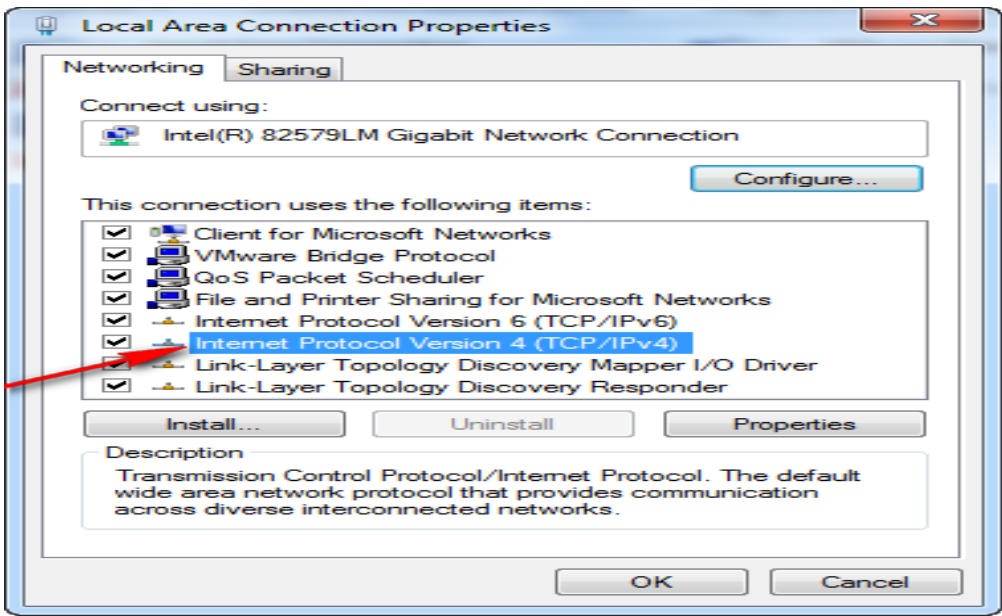
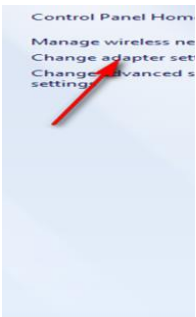
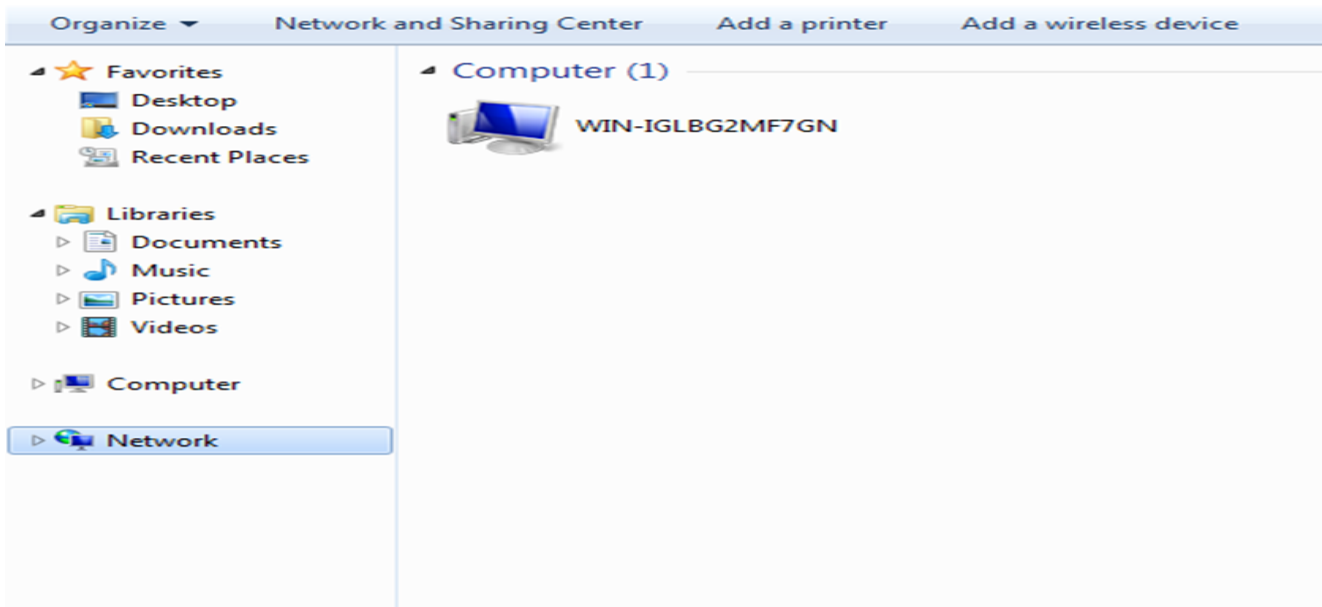
Make sure name of workgroup same in all computers

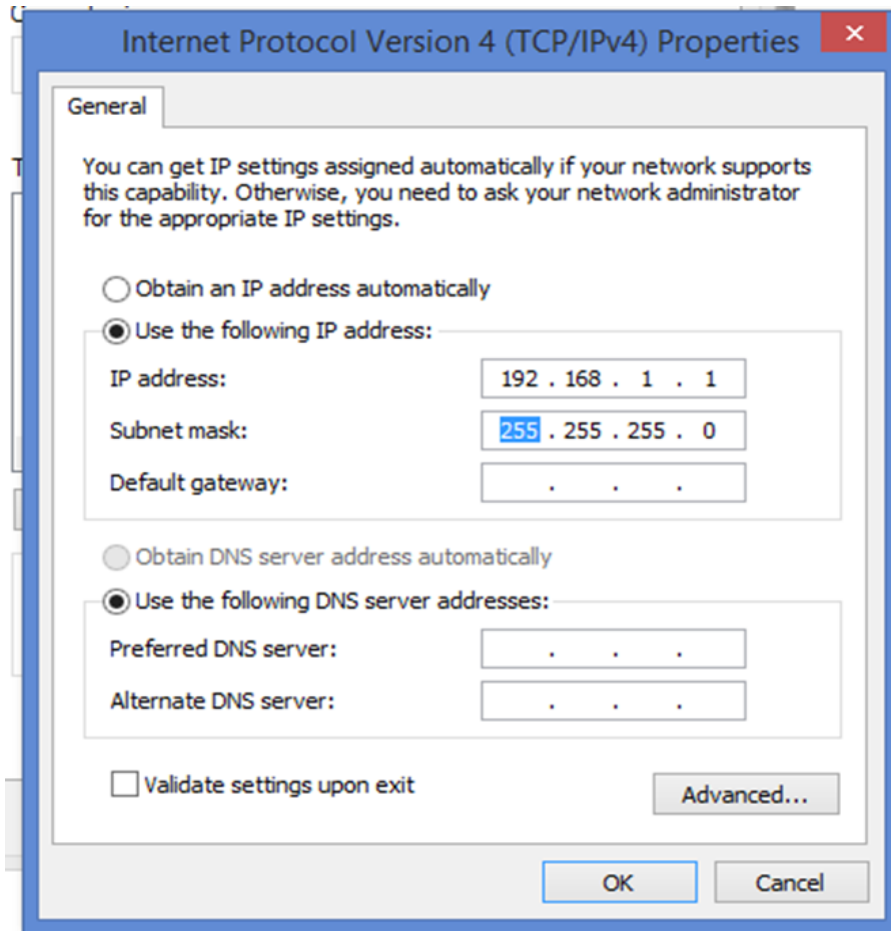
(Computer + properties)



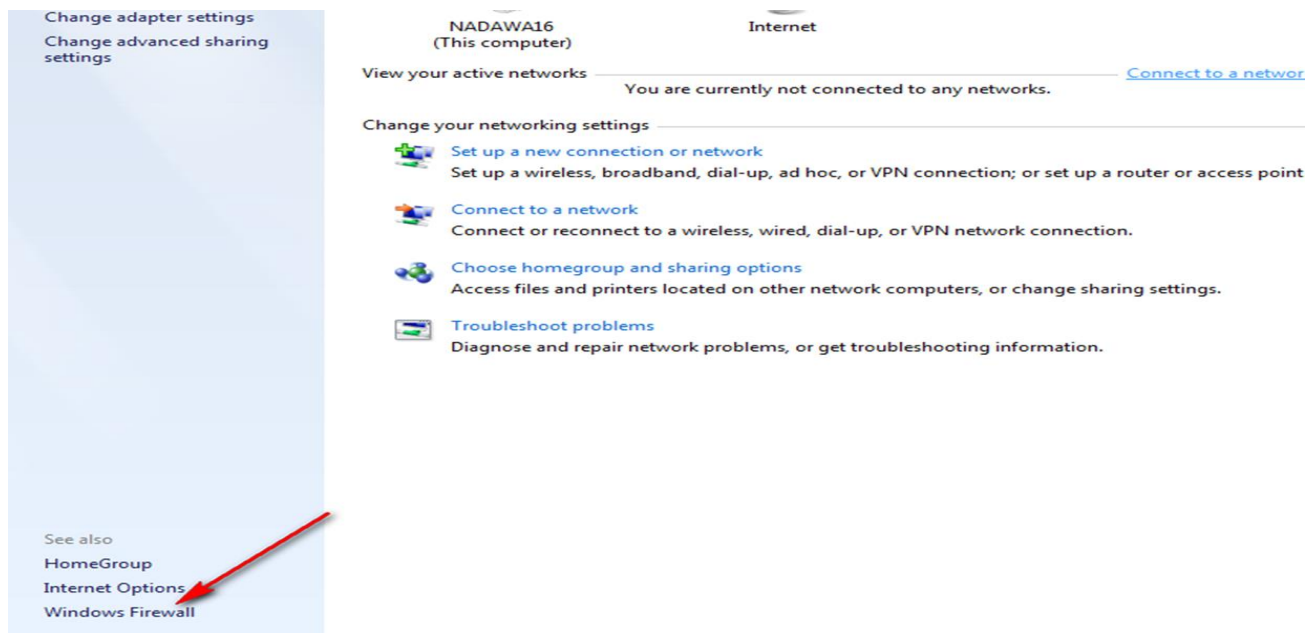


Configure IP address IPV4 where all computer have same network address





Turn of firewall in all computers



Customize settings for each type of network

You can modify the firewall settings for each type of network location that you use.

[What are network locations?](#)

Home or work (private) network location settings



☐ Turn on Windows Firewall

☐ Block all incoming connections, including those in the list of allowed programs

☒ Notify me when Windows Firewall blocks a new program



☒ Turn off Windows Firewall (not recommended)

Public network location settings



☐ Turn on Windows Firewall

☐ Block all incoming connections, including those in the list of allowed programs

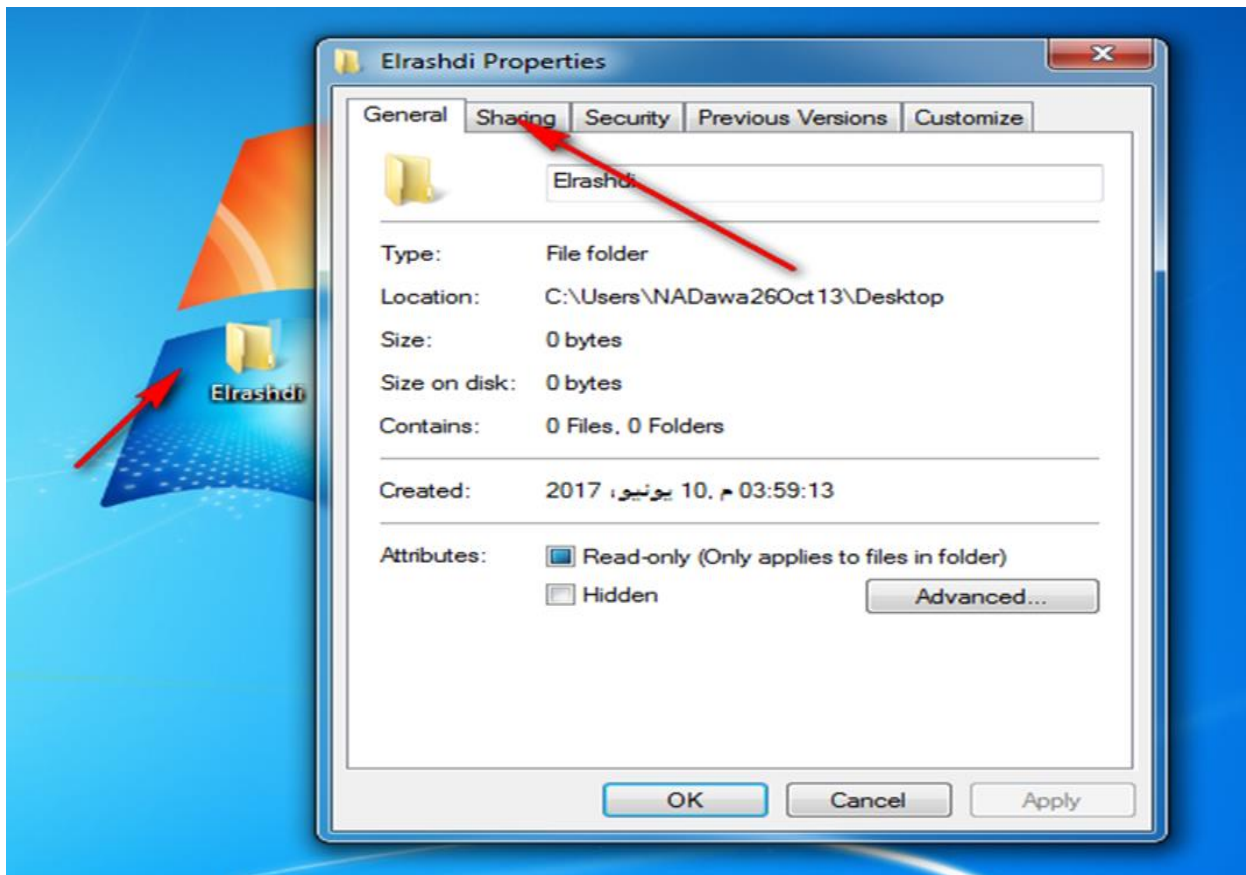
☒ Notify me when Windows Firewall blocks a new program

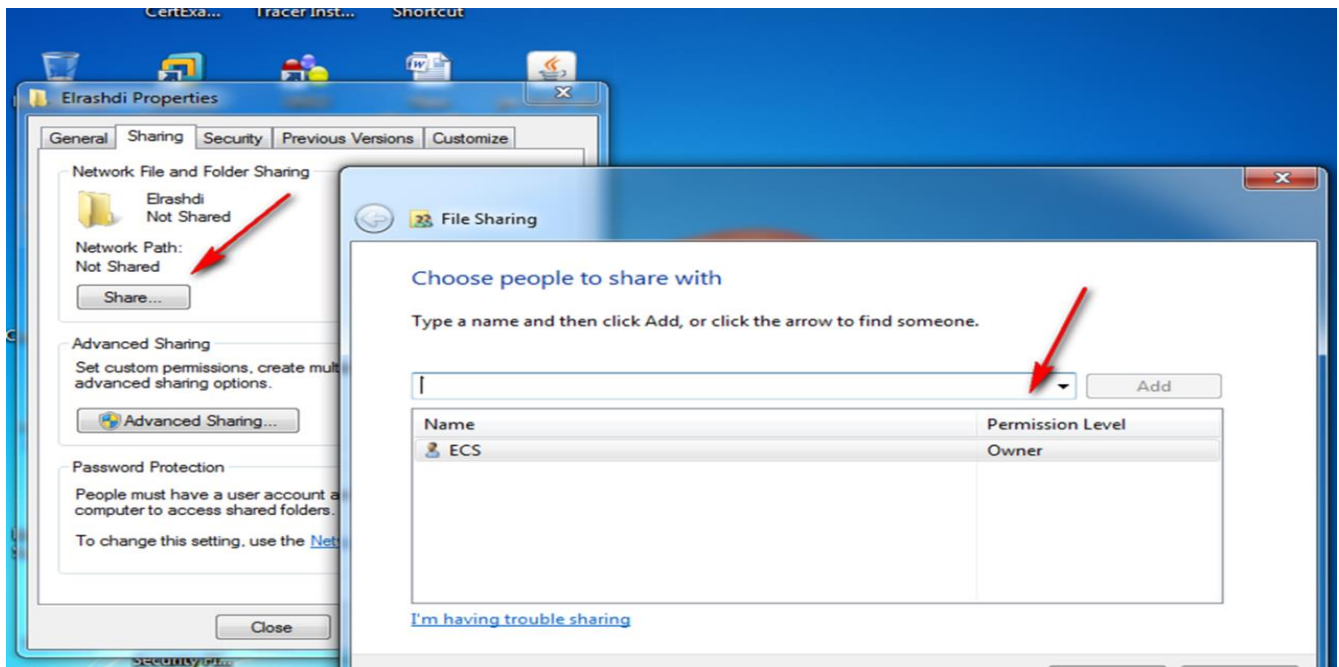


☒ Turn off Windows Firewall (not recommended)

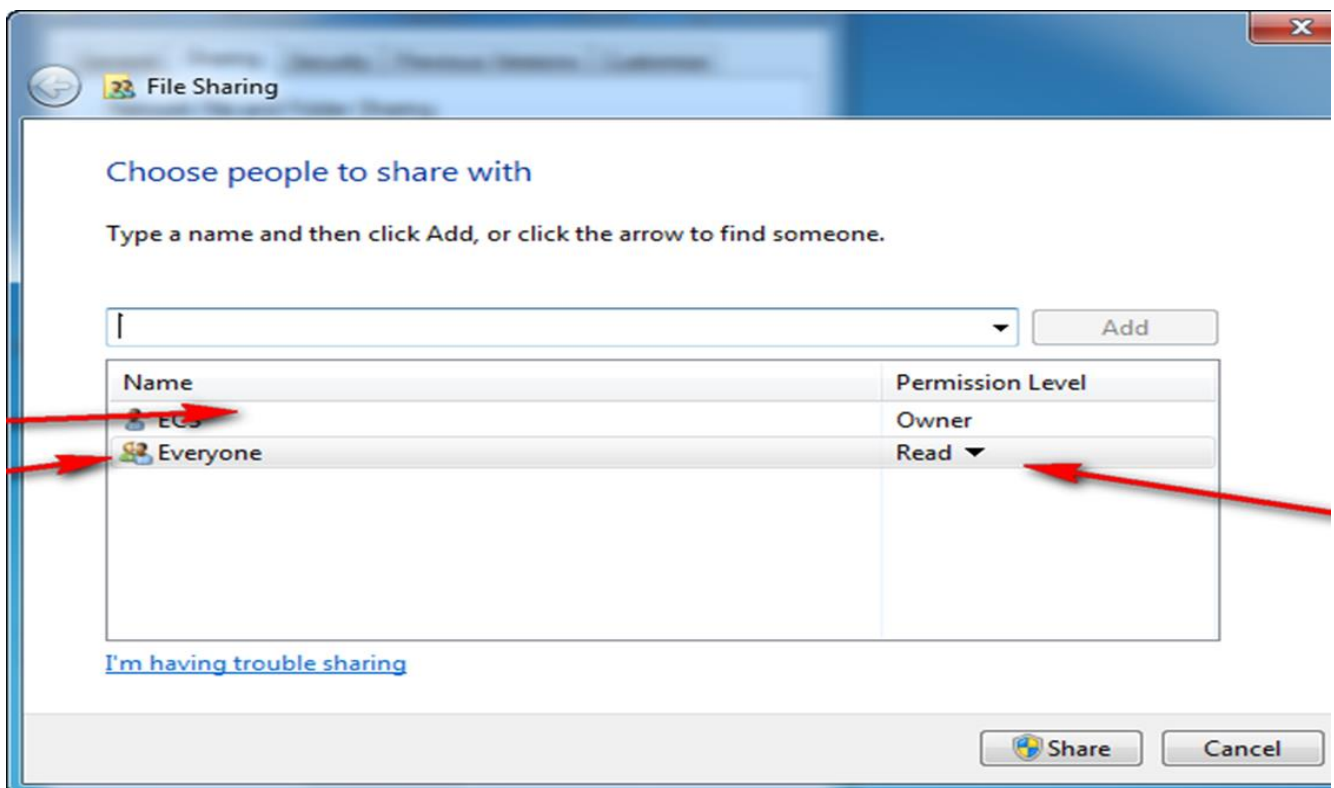
Sharing folders

Right click on folder then properties ,sharing then choice the people that can access to folder



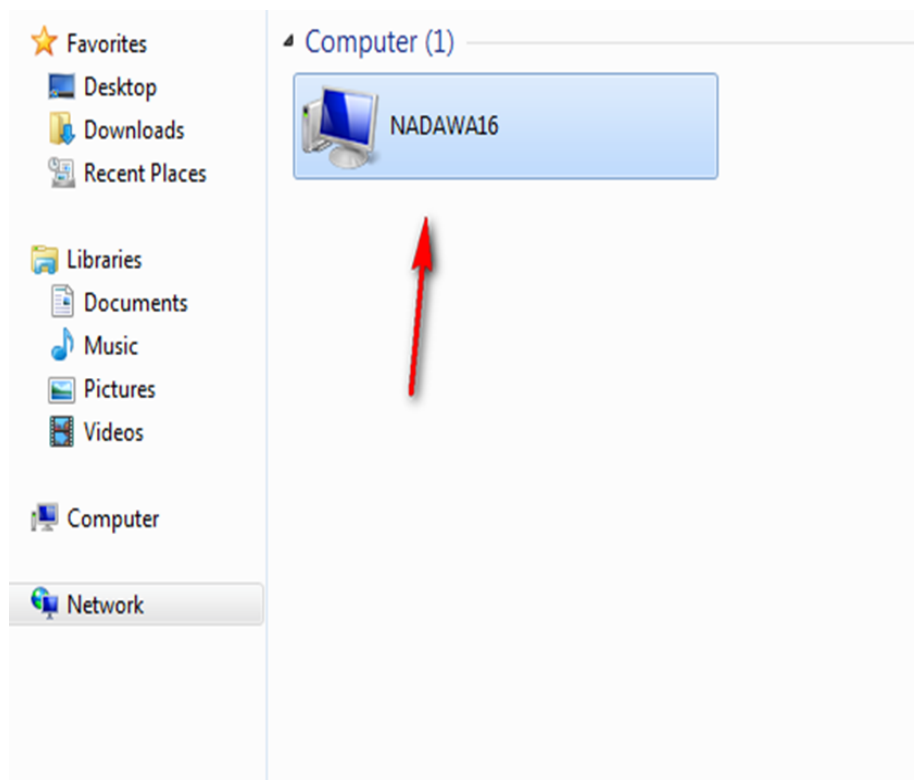
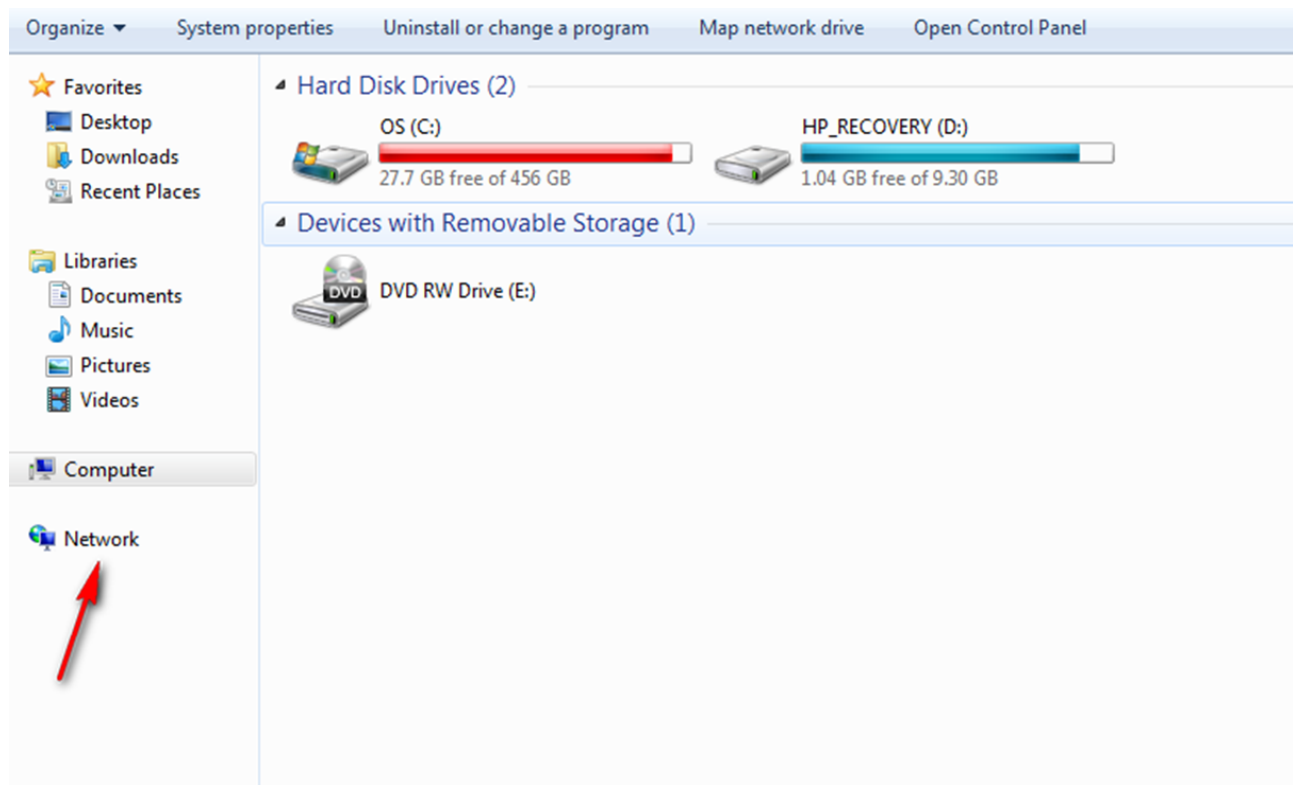


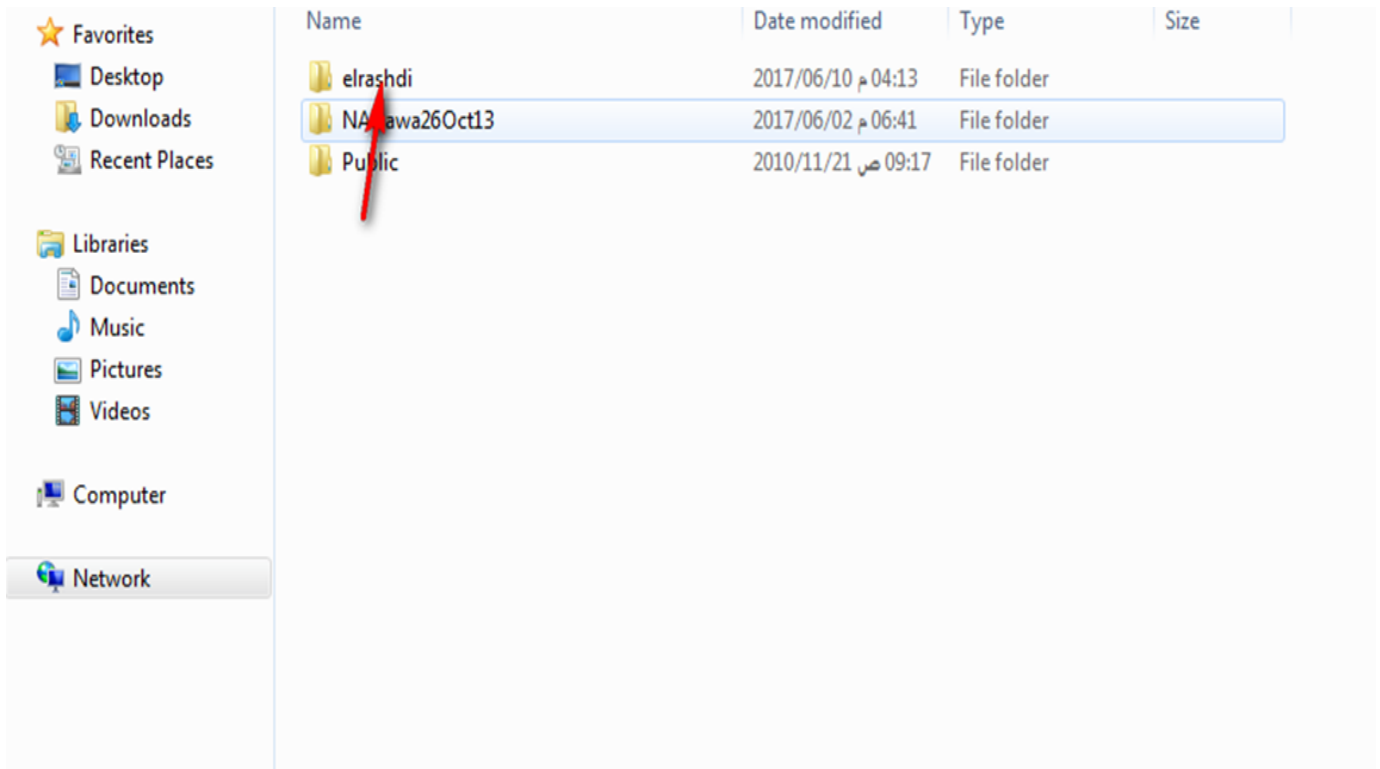
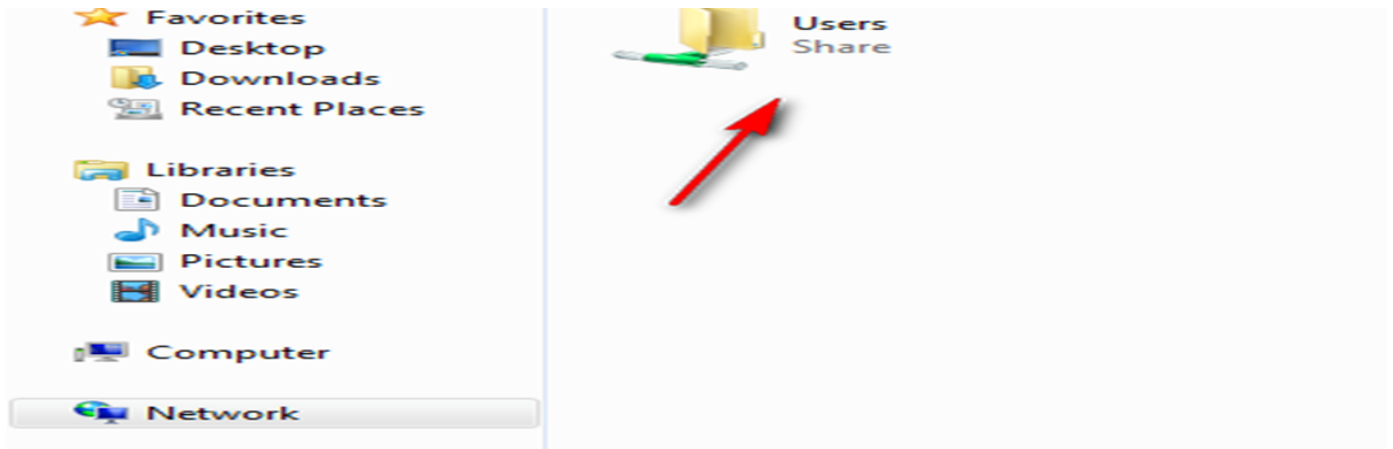
Sharing everyone or specific user



Access to sharing folders

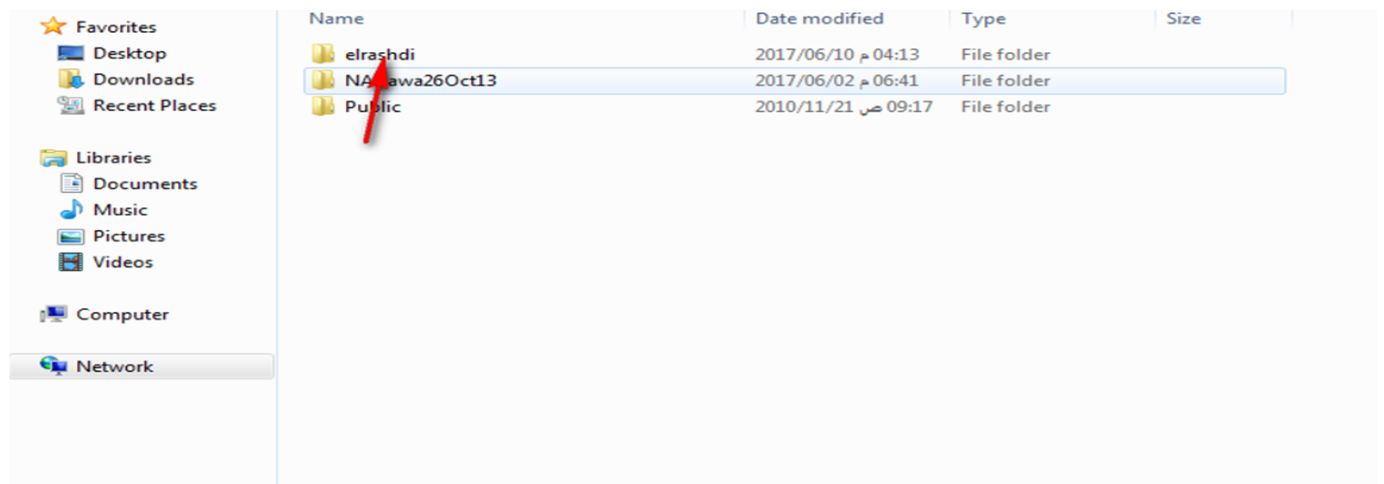
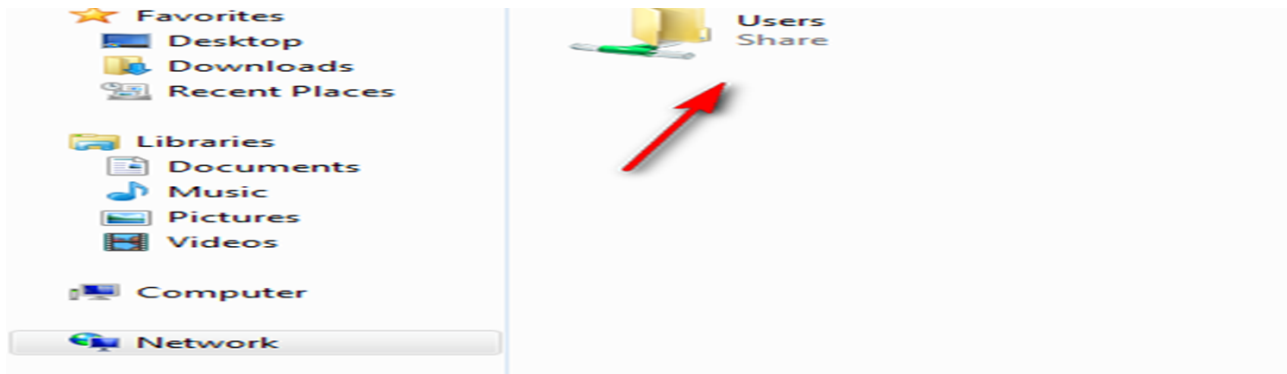
My computer ,network





Another way to access to sharing folders

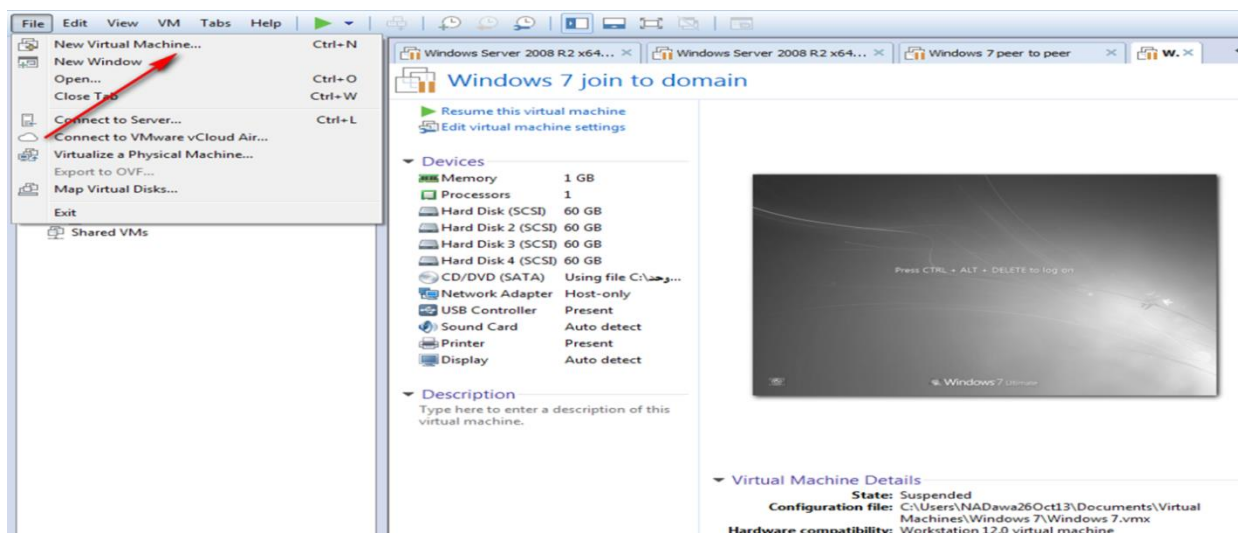
Computer -----network ----- as the following

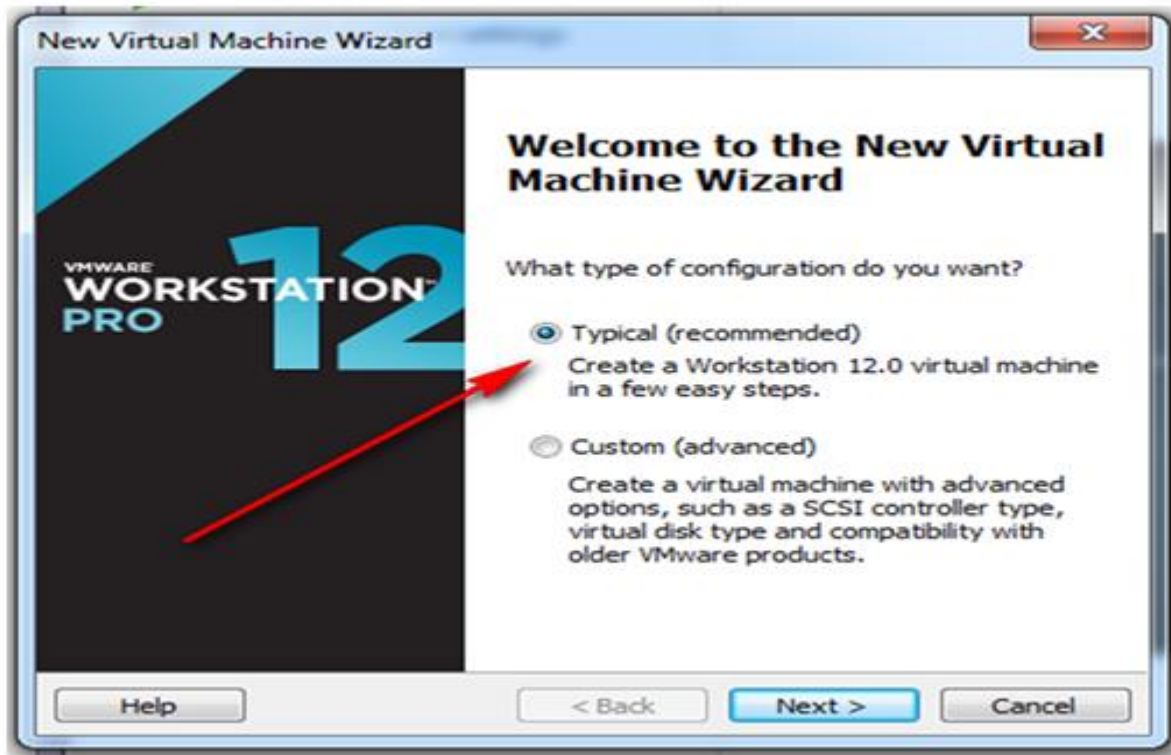


3- Install windows seven on VMware 12

تحميل نظام تشغيل افتراضي (ويندوز7) داخل برنامج المحاكاة VMware12

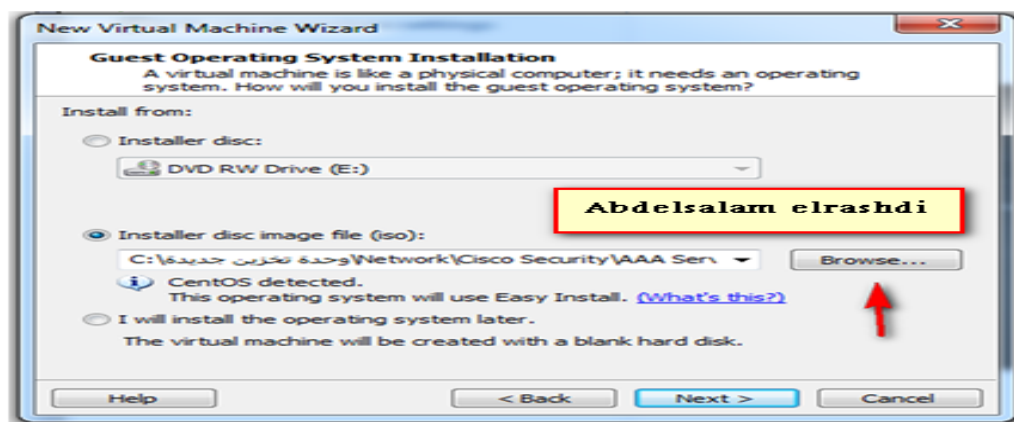
Create virtual machine on VMware 12





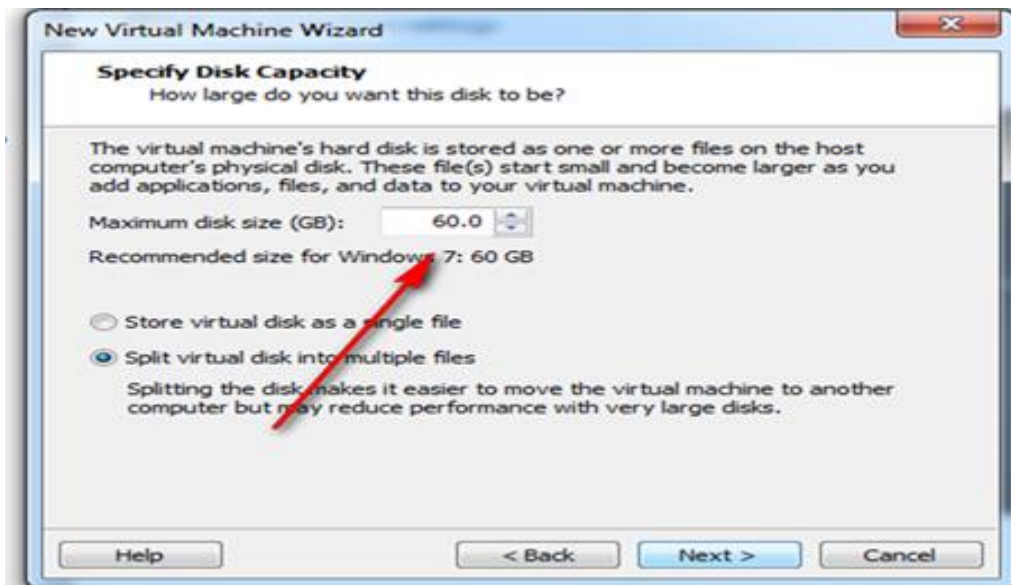
Press browser then Choice image that cantinas inside it window seven if you have DVD contains inside it window seven image choice first option (installer disc)

اختيار مكان نسخة الويندوز في القرص الصلب

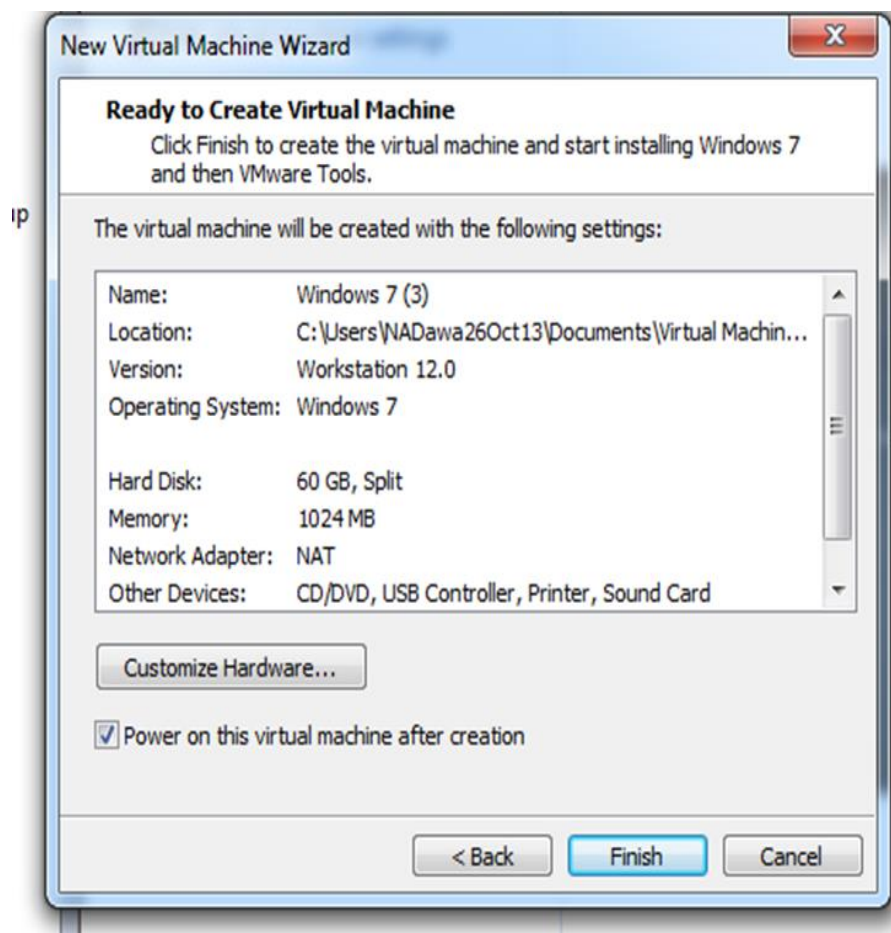


Size of virtual hard disk

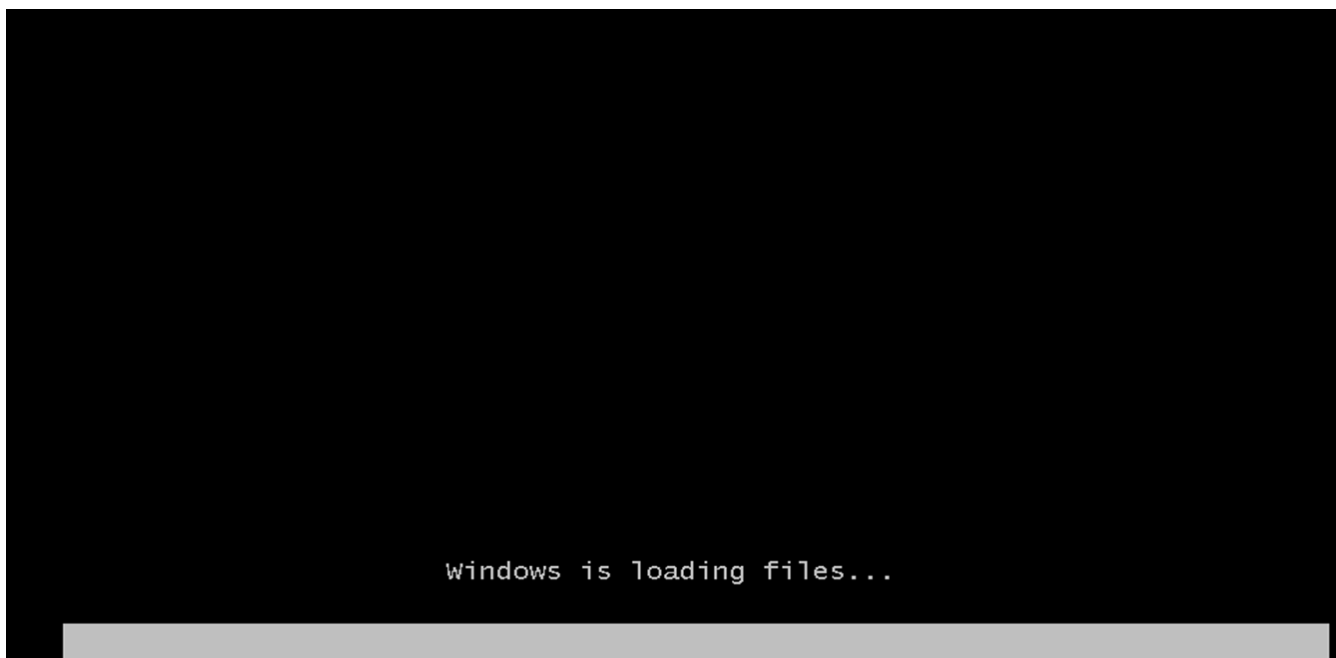
تحديد حجم المساحة التخزينية للقرص الصلب



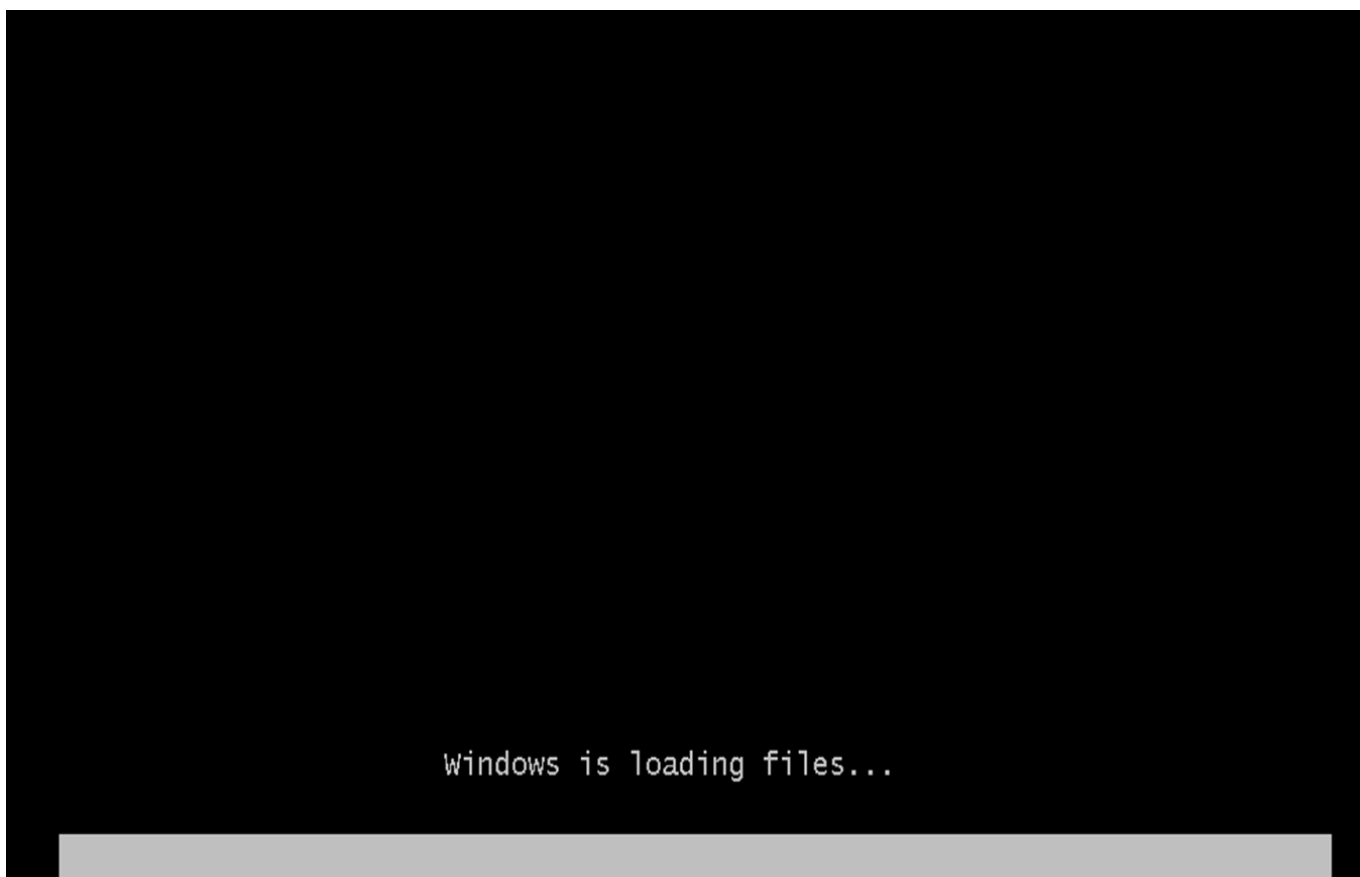
Finish



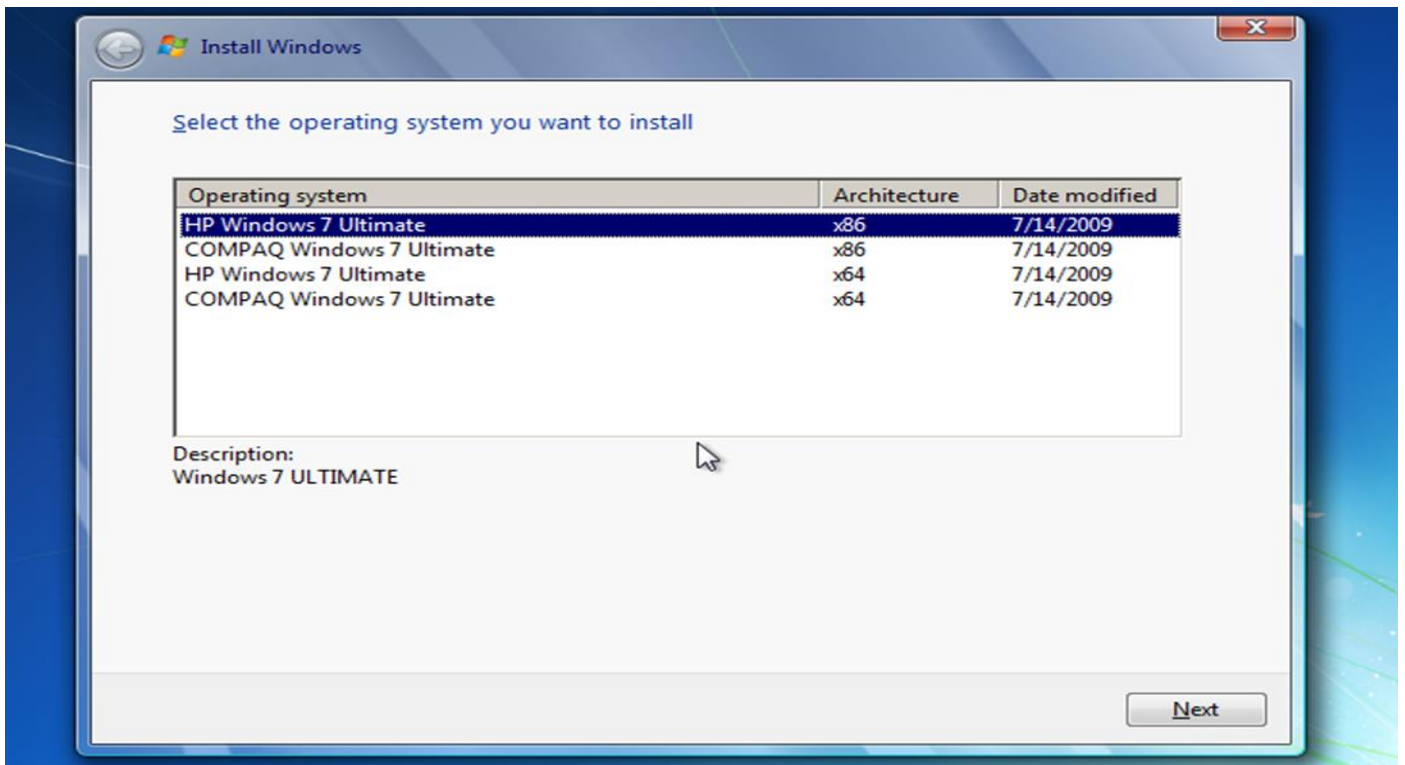
Loading files



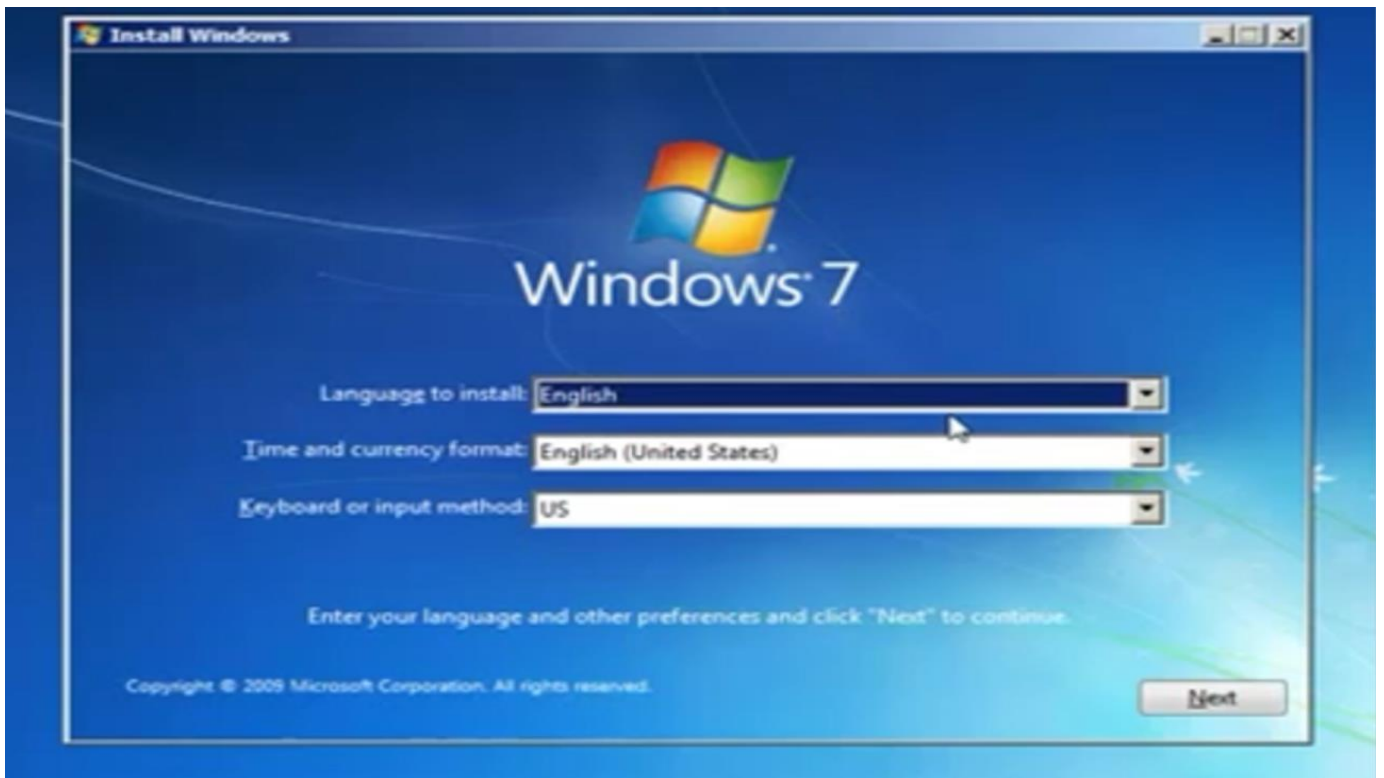
Starting installation



Choice edition of windows seven

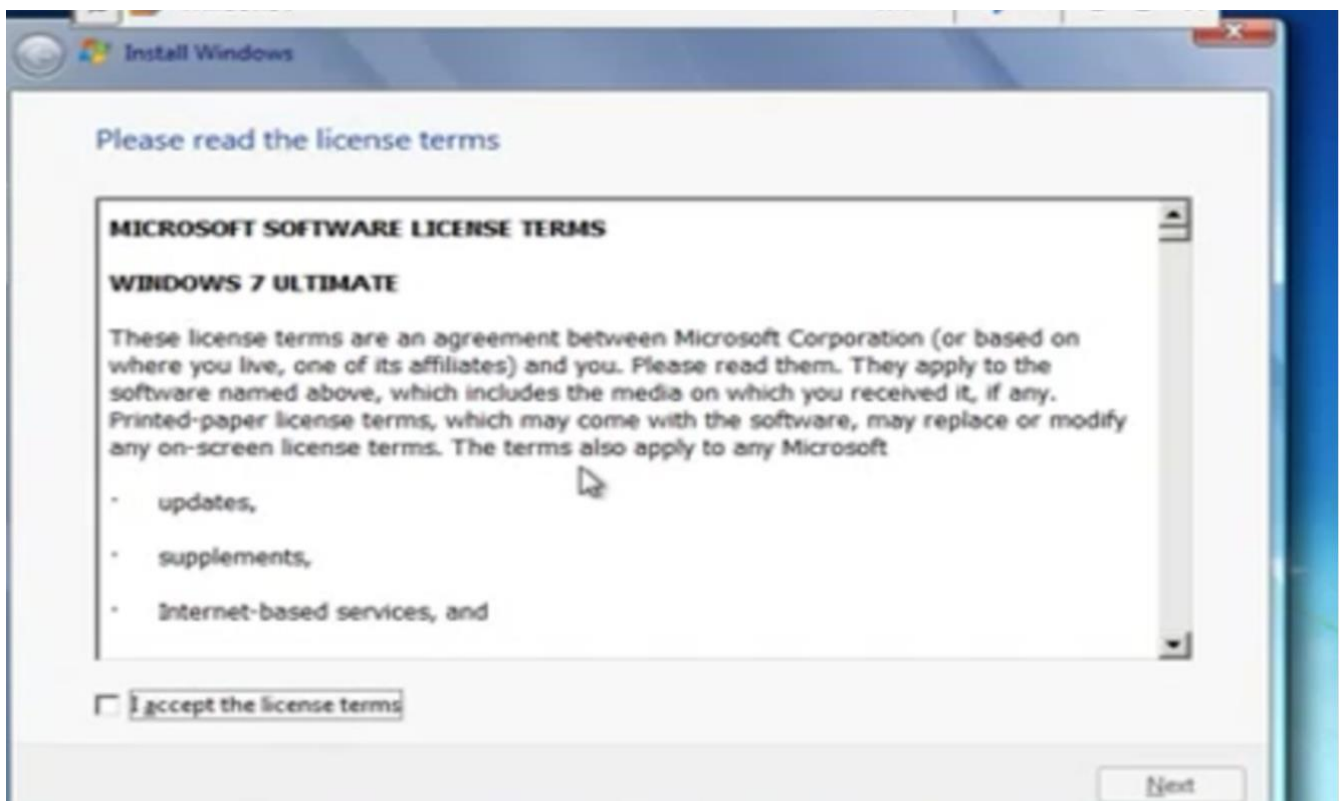


Choice the language

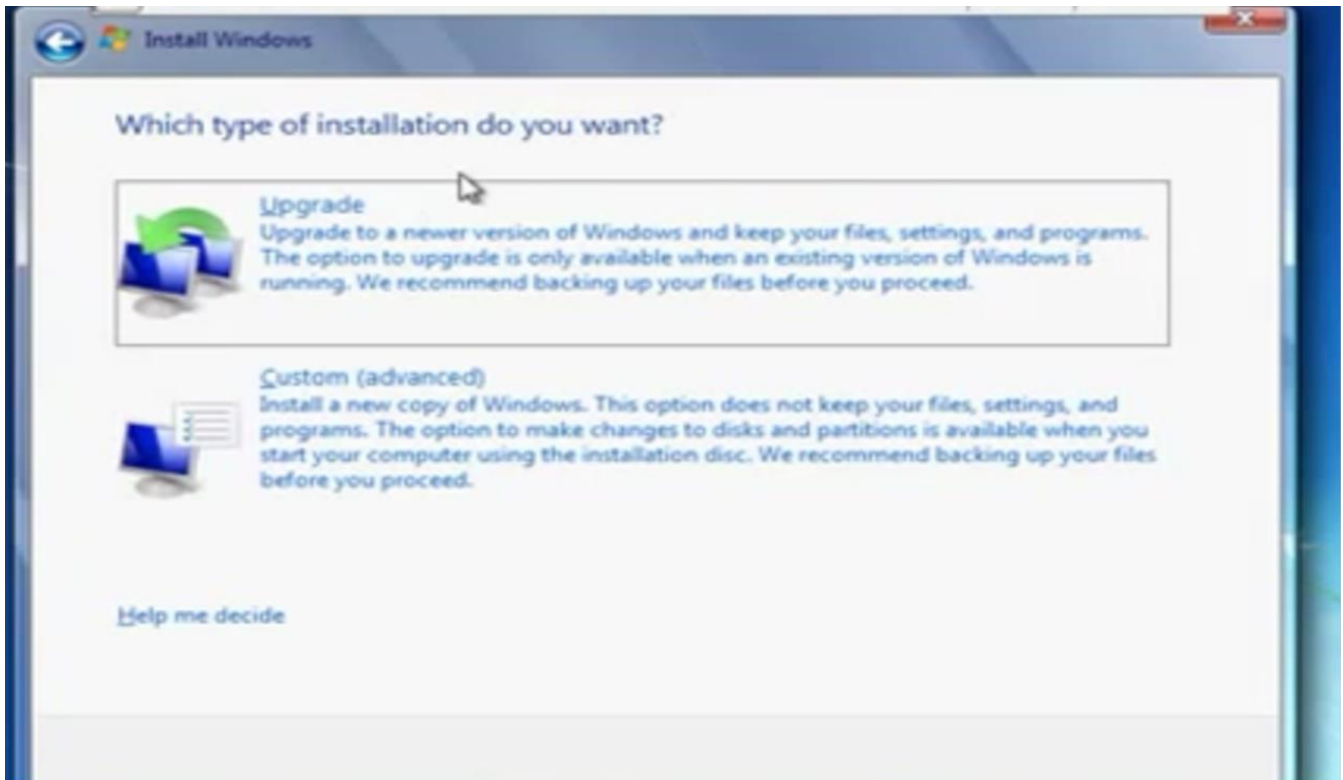




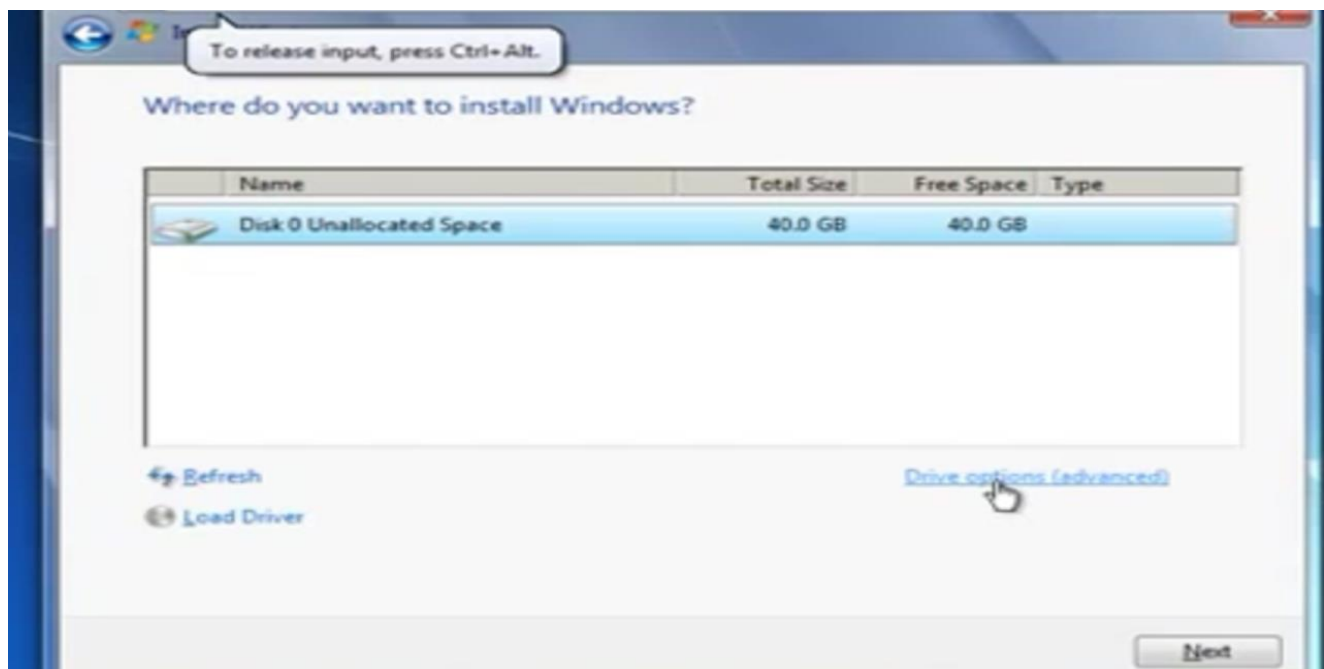
Accept the license



On the installation type page, click on Custom (advanced) to start a new installation

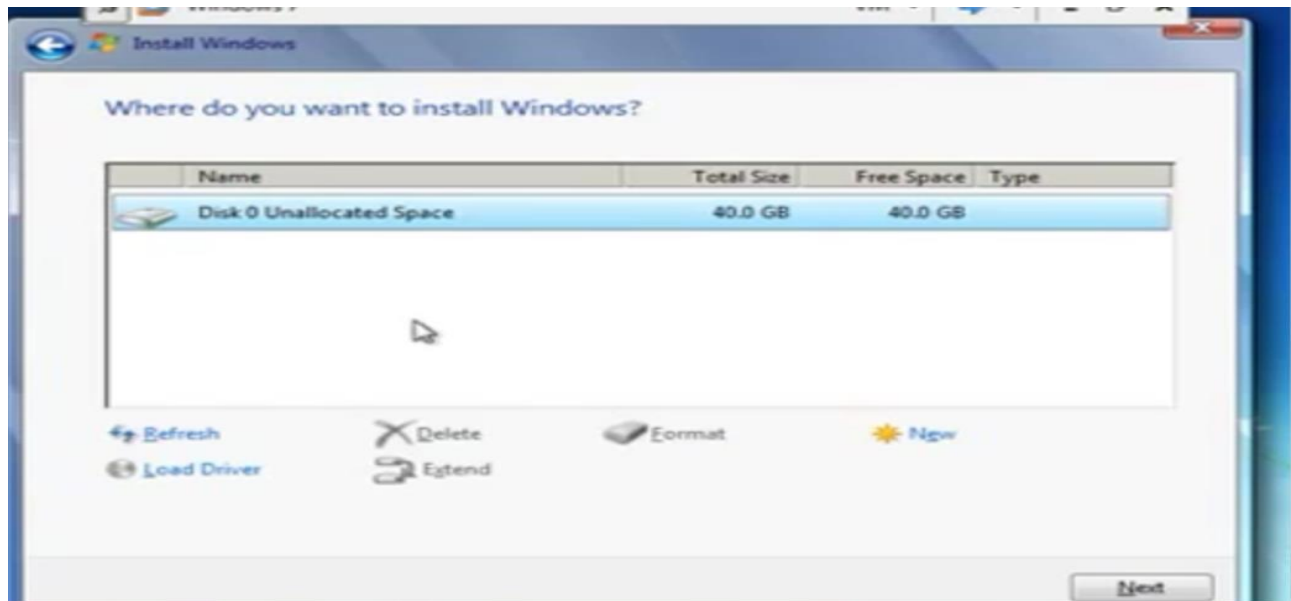


Choose the partition or disk that you want to install Windows 7 on, and then click Next

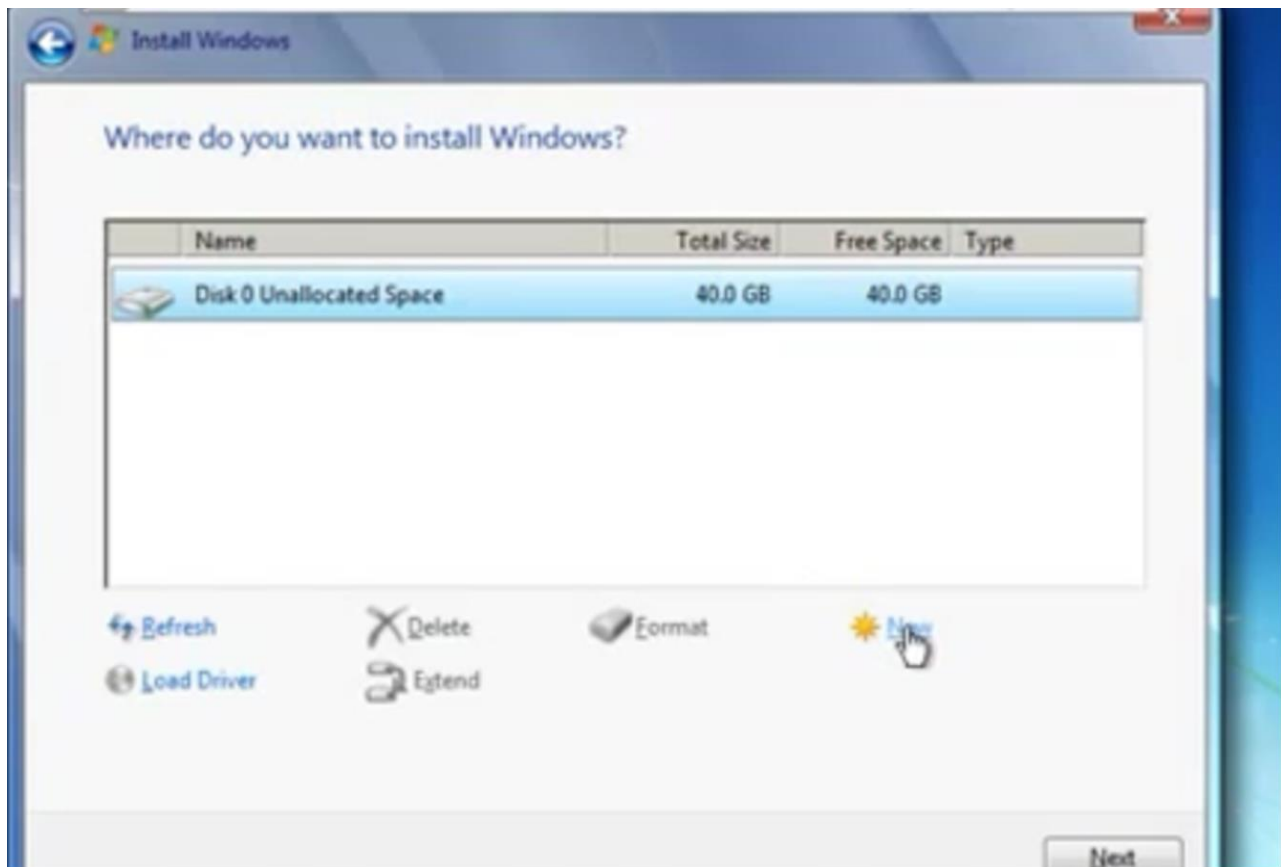


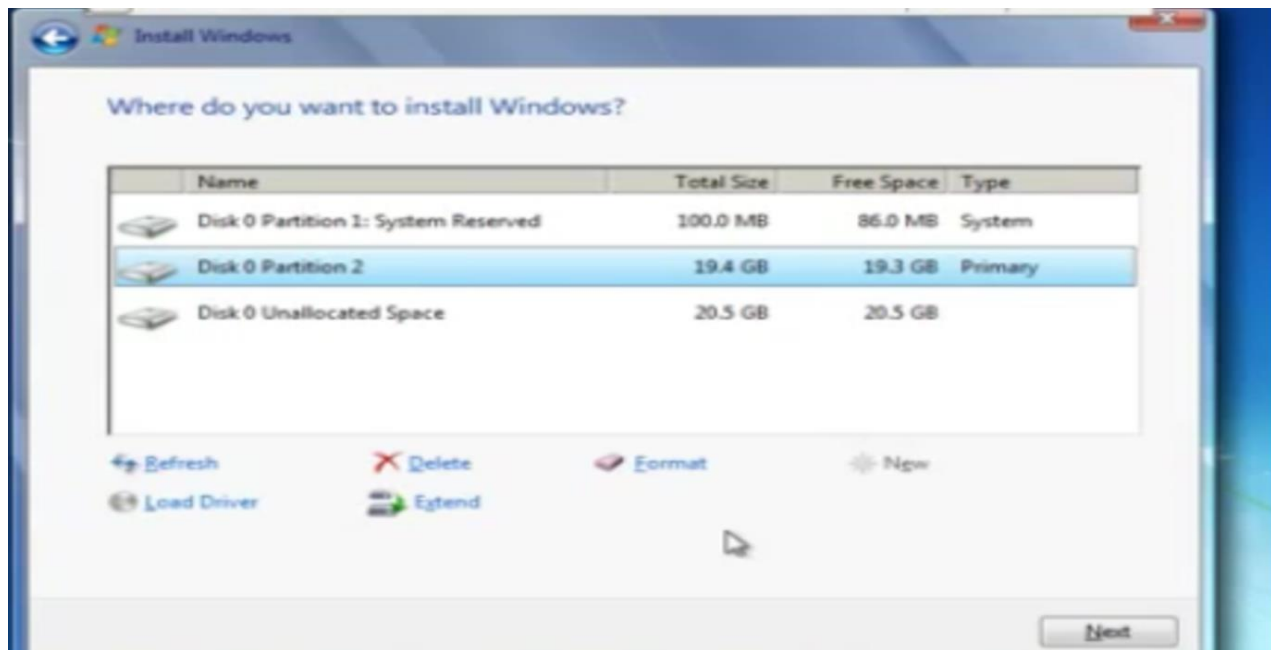
Choose the partition or disk that you want to install Windows 7 on, and then click Next

تقسيم القرص الصلب الي اقراص مختلفة وتحديد حجم كل قرص

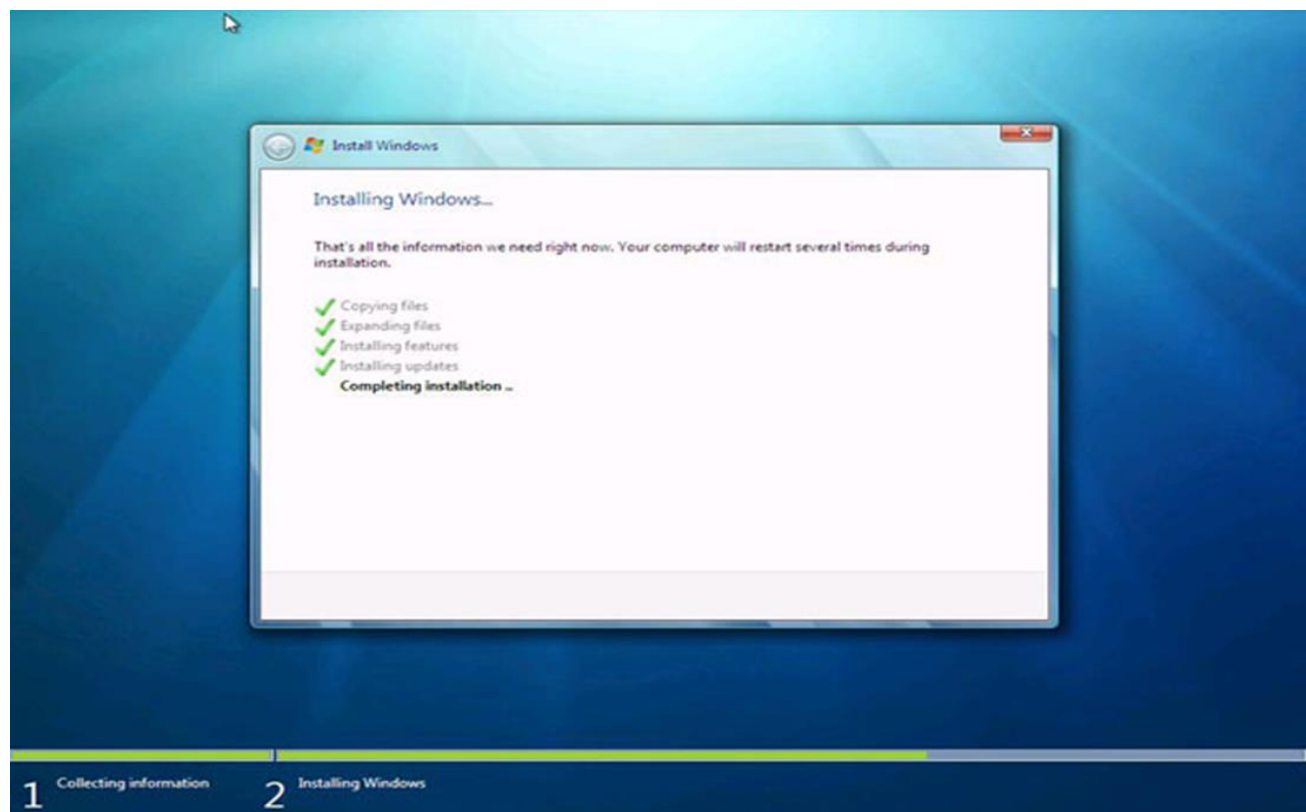


Extend or format desk

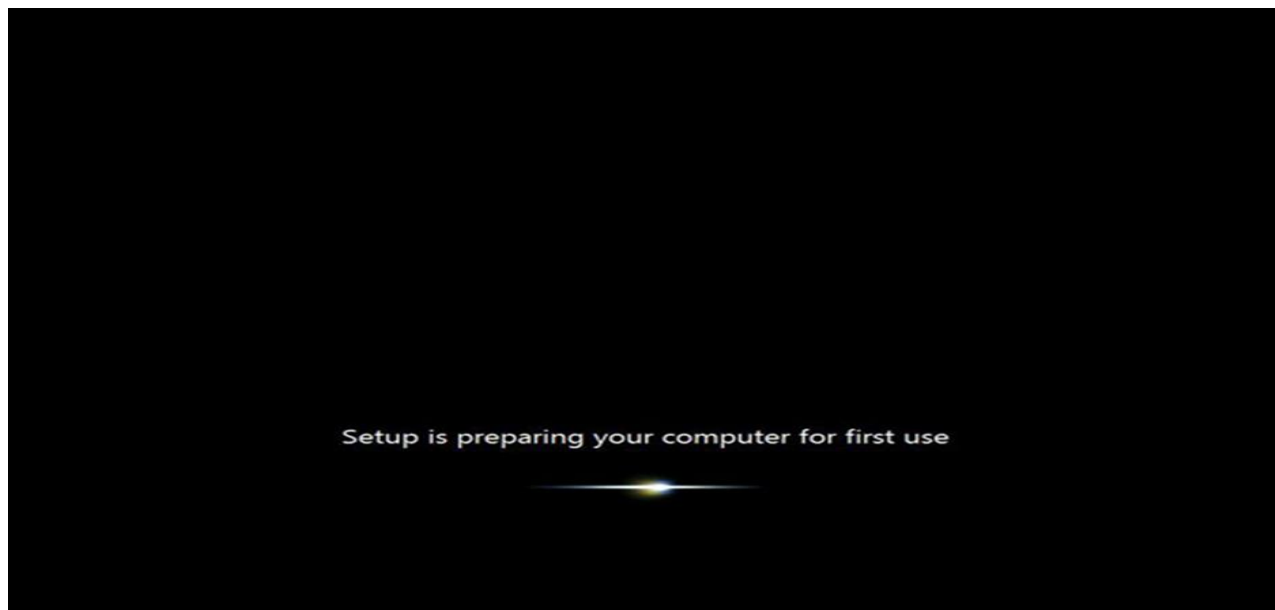




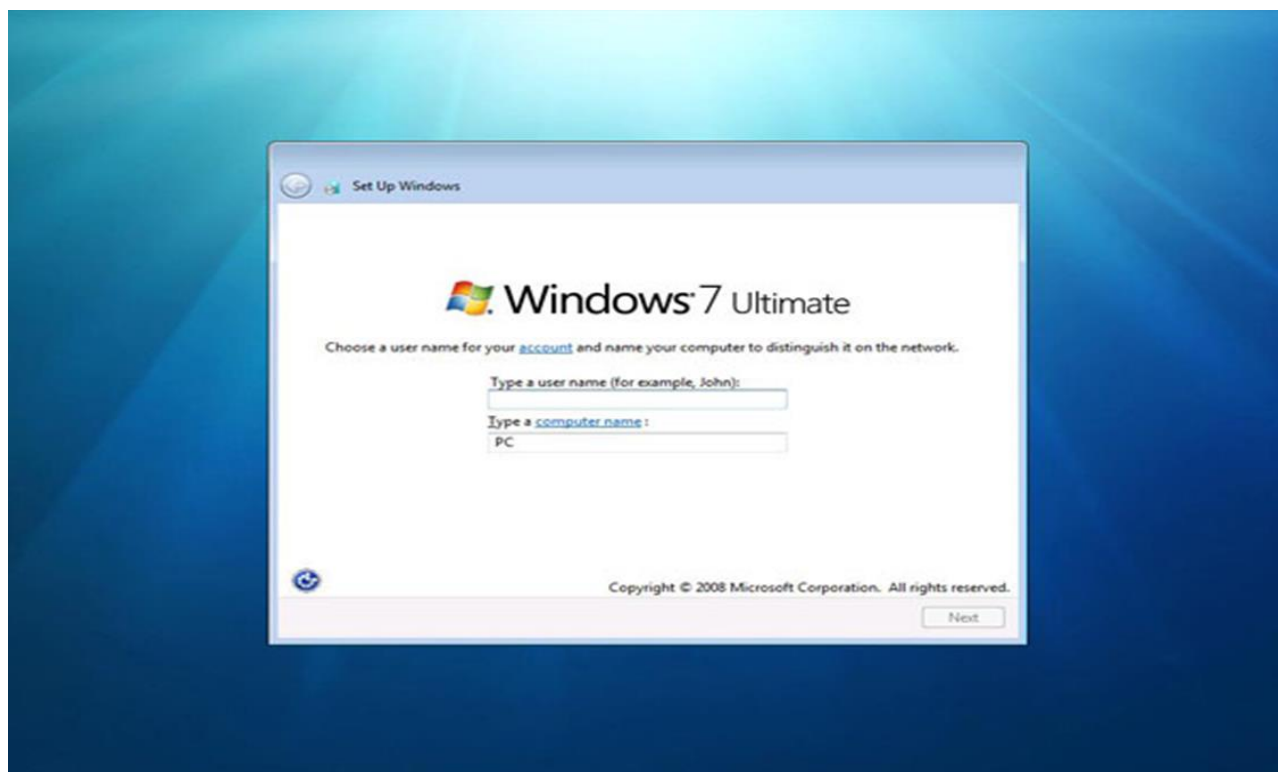
Installation will start



Setup will prepare computer for first use

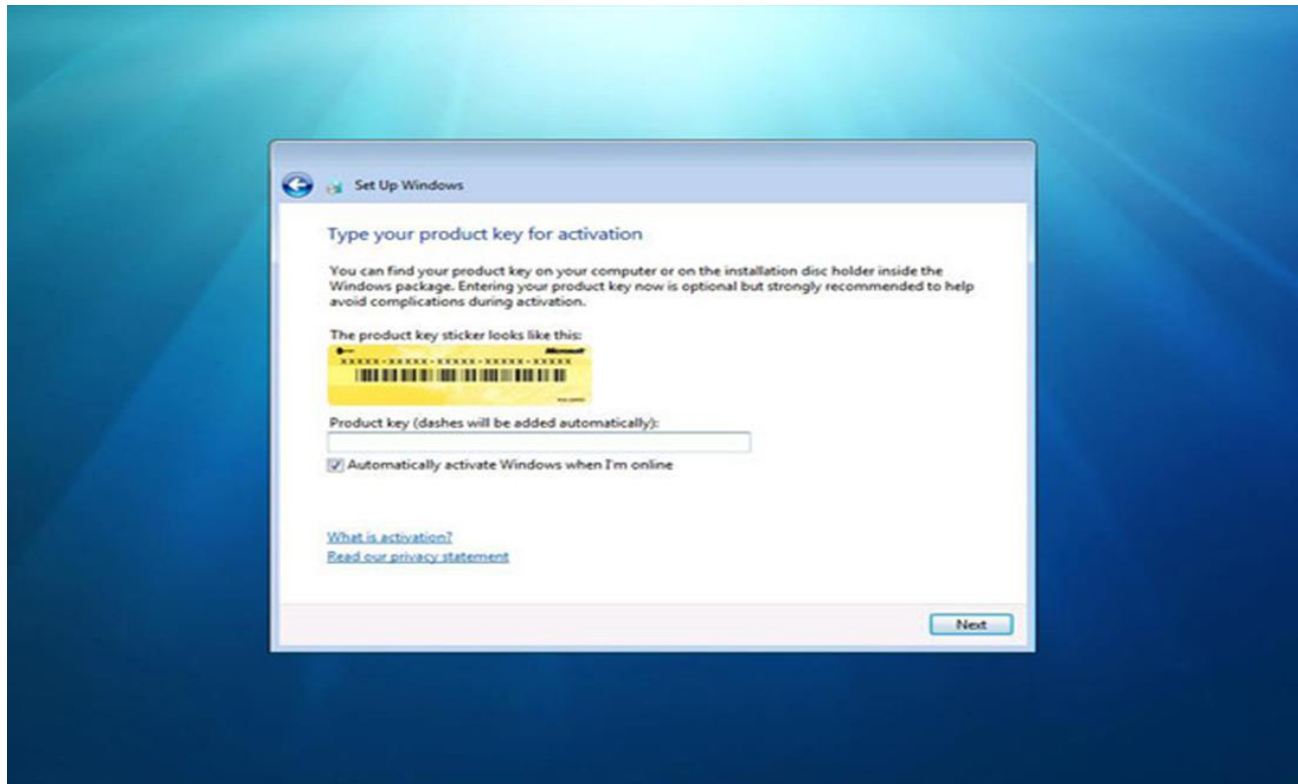


Setup will continue, and this time you will have to choose a username and a computer name



On the Product Key page, you can either enter the product key or simply leave it empty and click on Next

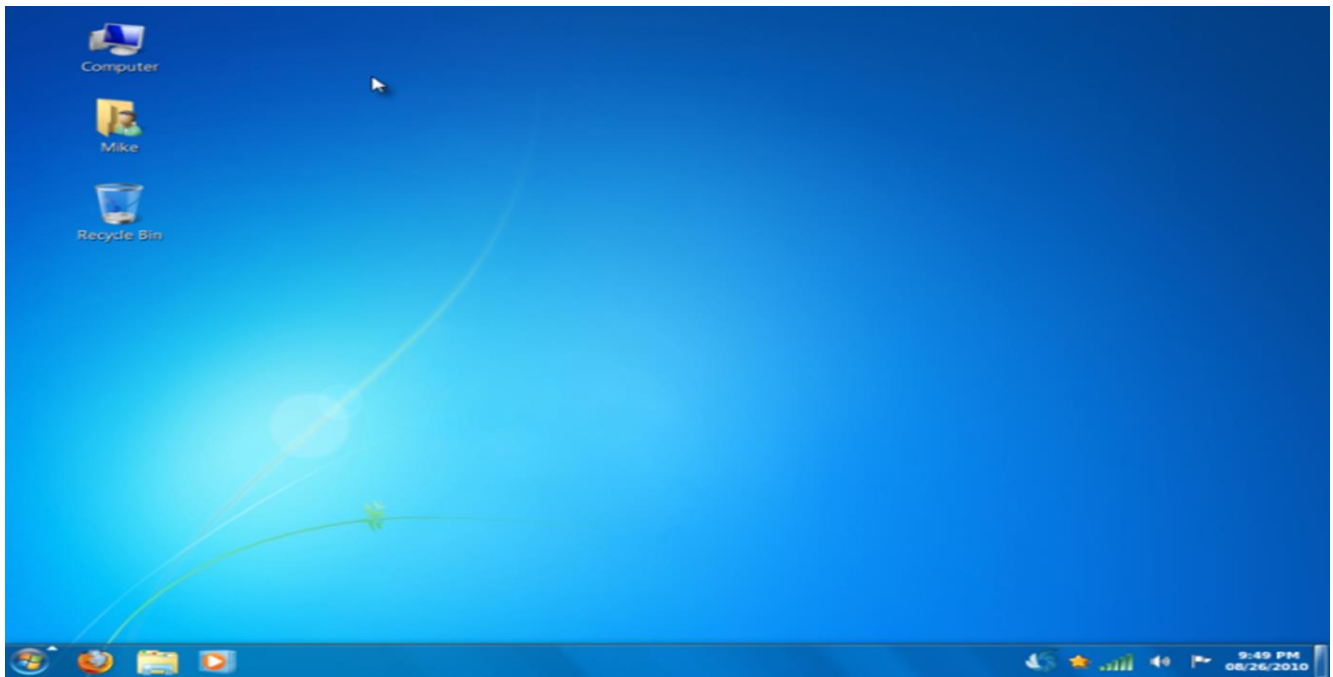
ادخال رقم المنتج الخاصة بنظام التشغيل



Desktop first time



Desktop first time

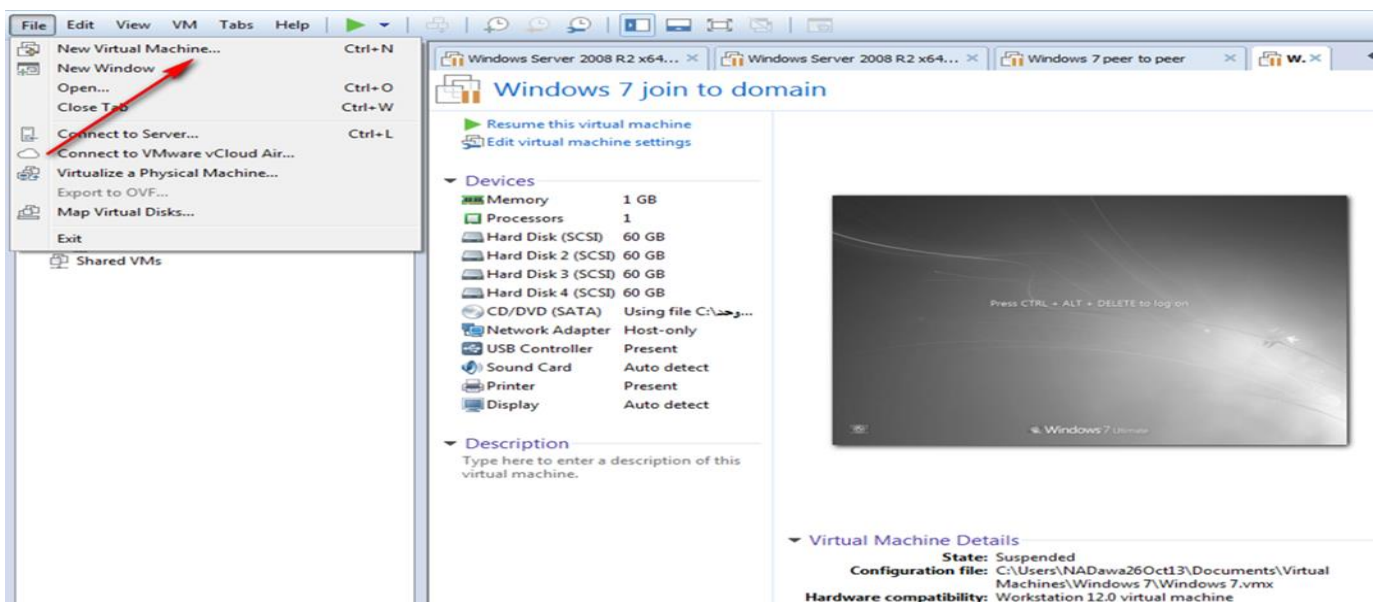


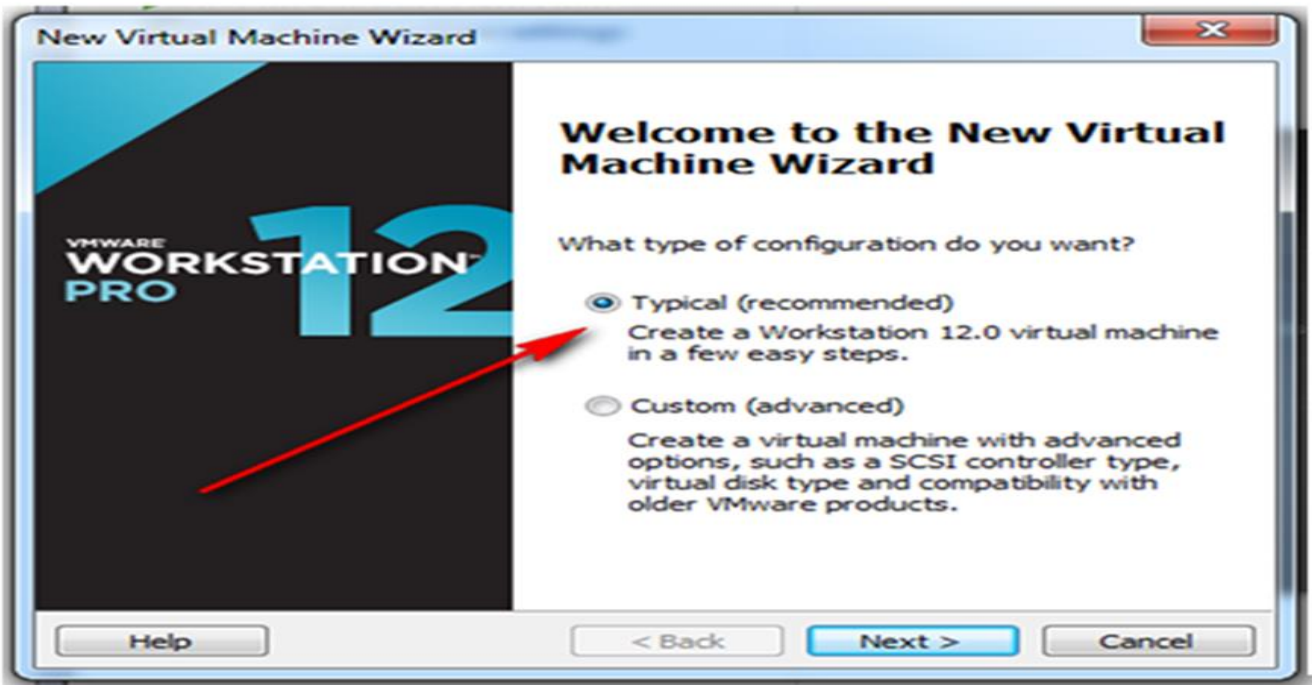
4- Install windows server 2008R2

تحميل نظام تشغيل window server 2008R2

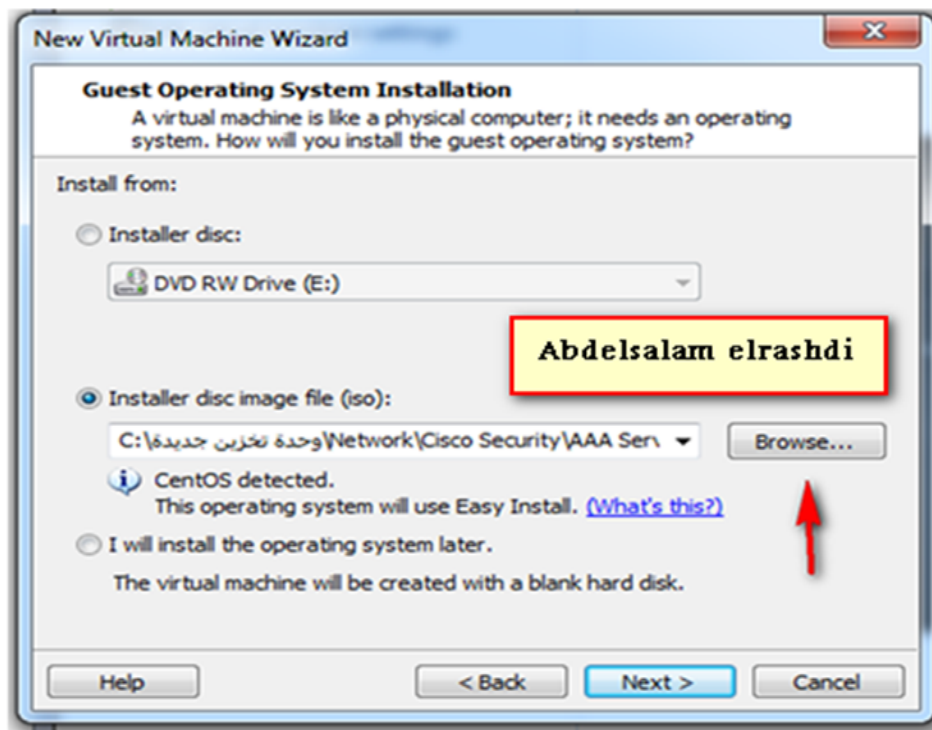
Create virtual machine on Vmware 12

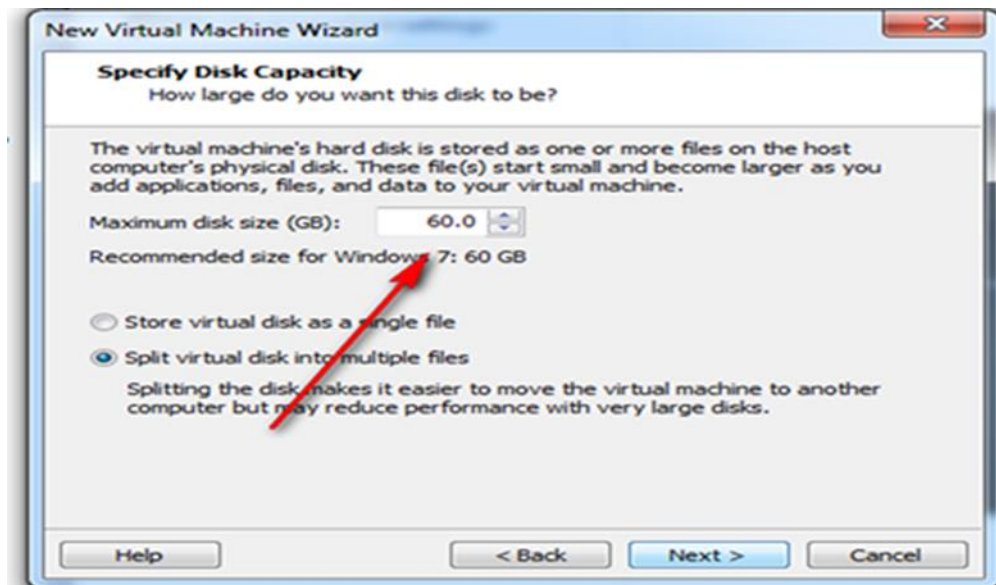
Install window server 2008 r2





Press browser then Choice image that contains inside it window server 2008R2 if you have DVD contains inside it window server 2008R2 image choice first option (installer disc)



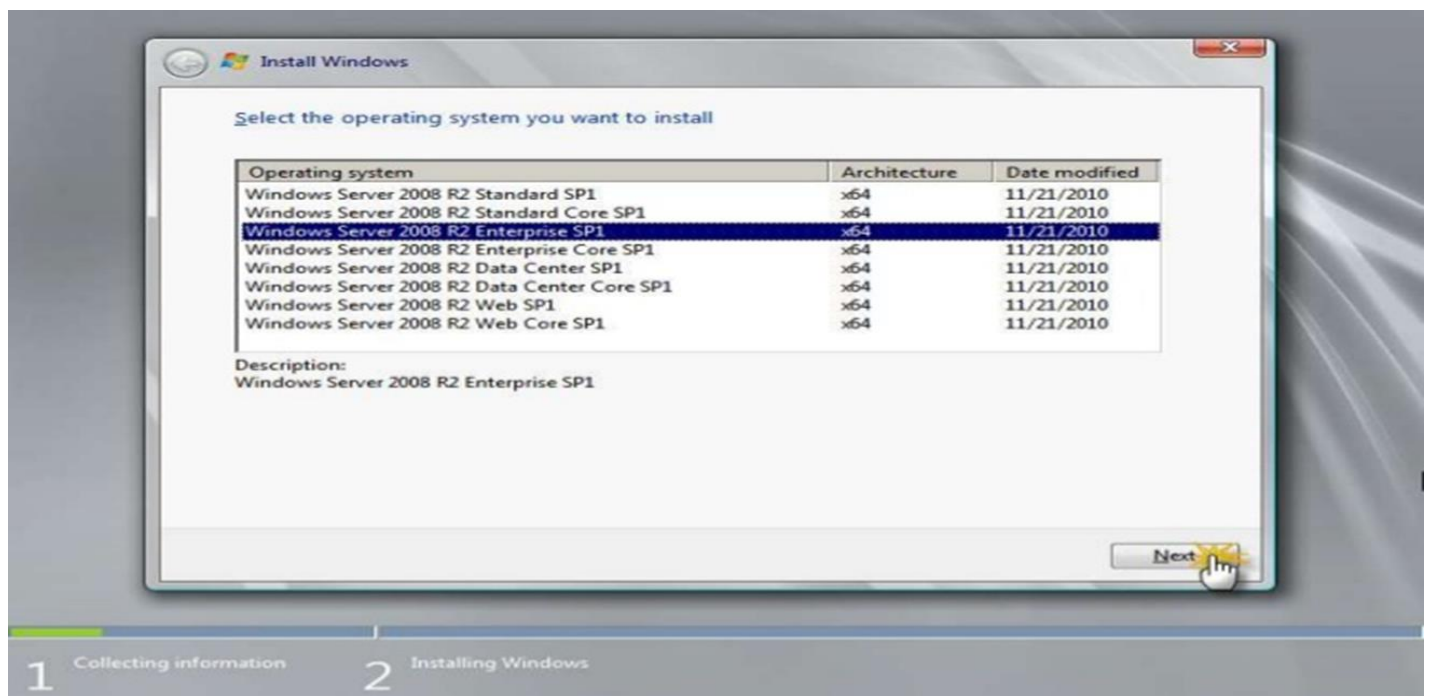


Choice the language

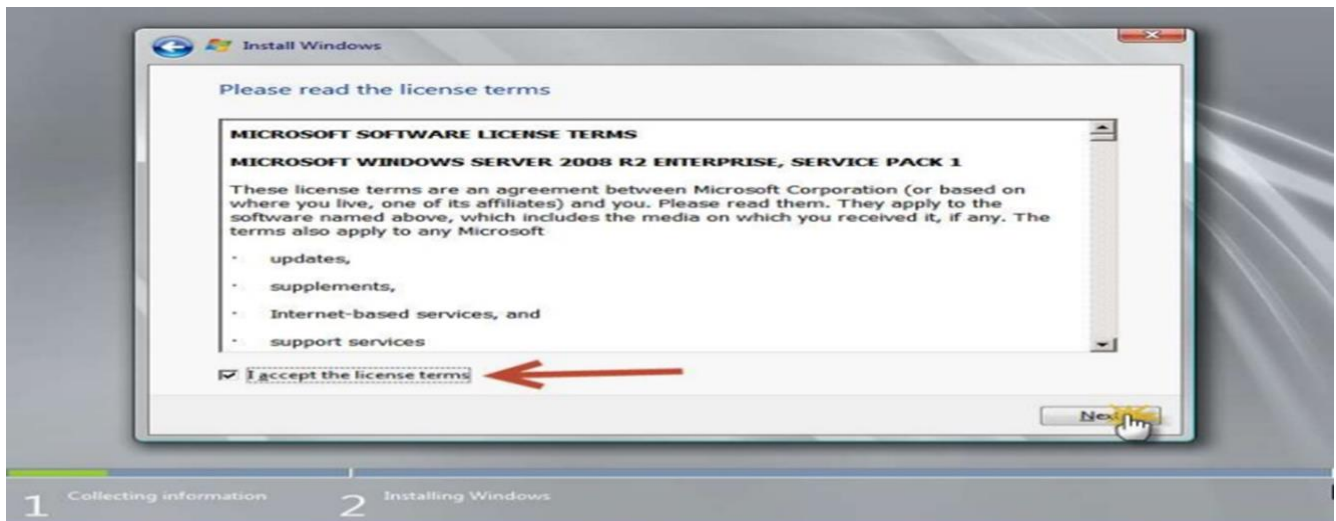
Install windows

Choice enterprise edition

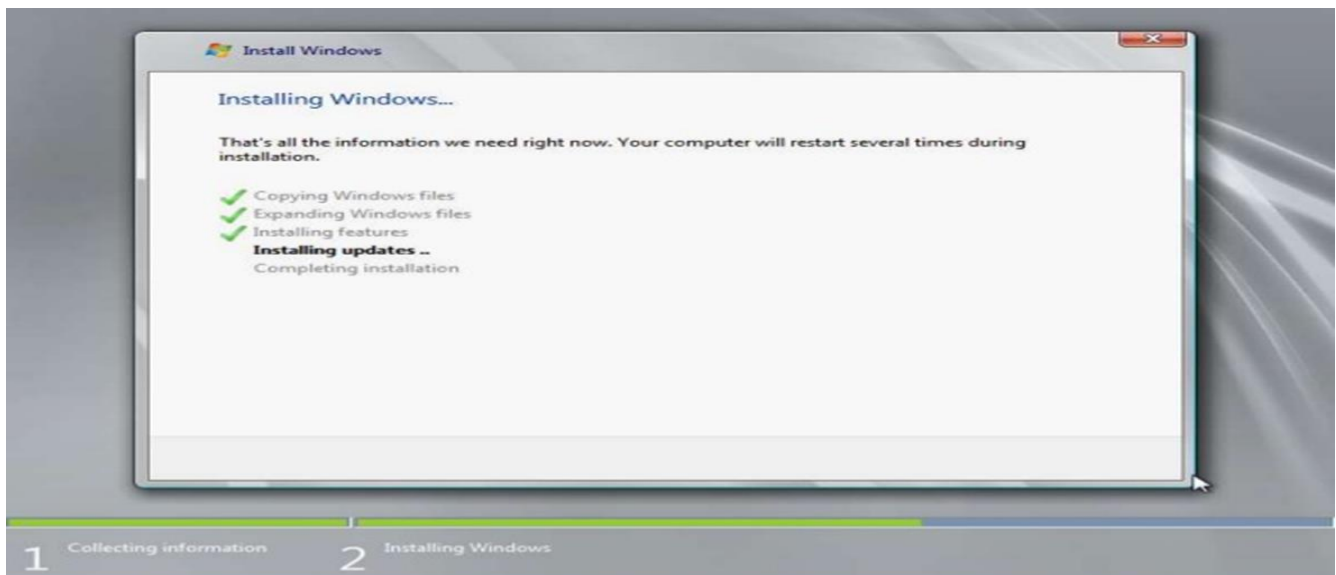
اختيار اصدار نظام التشغيل الخاص بي window server 2008R2



Accept license



Installing windows



Starting windows



Change the password first time log in



Change the password first time log in

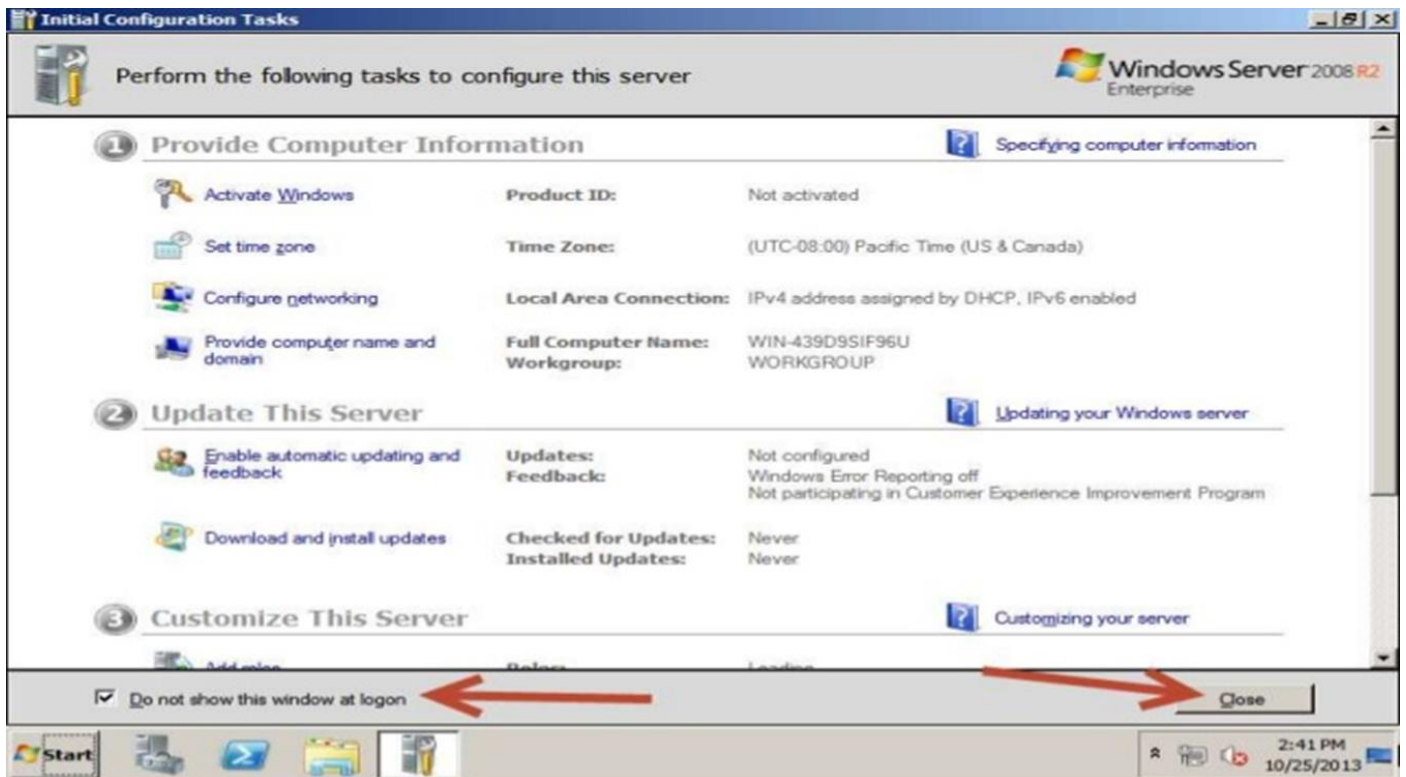


Change the password first time log in

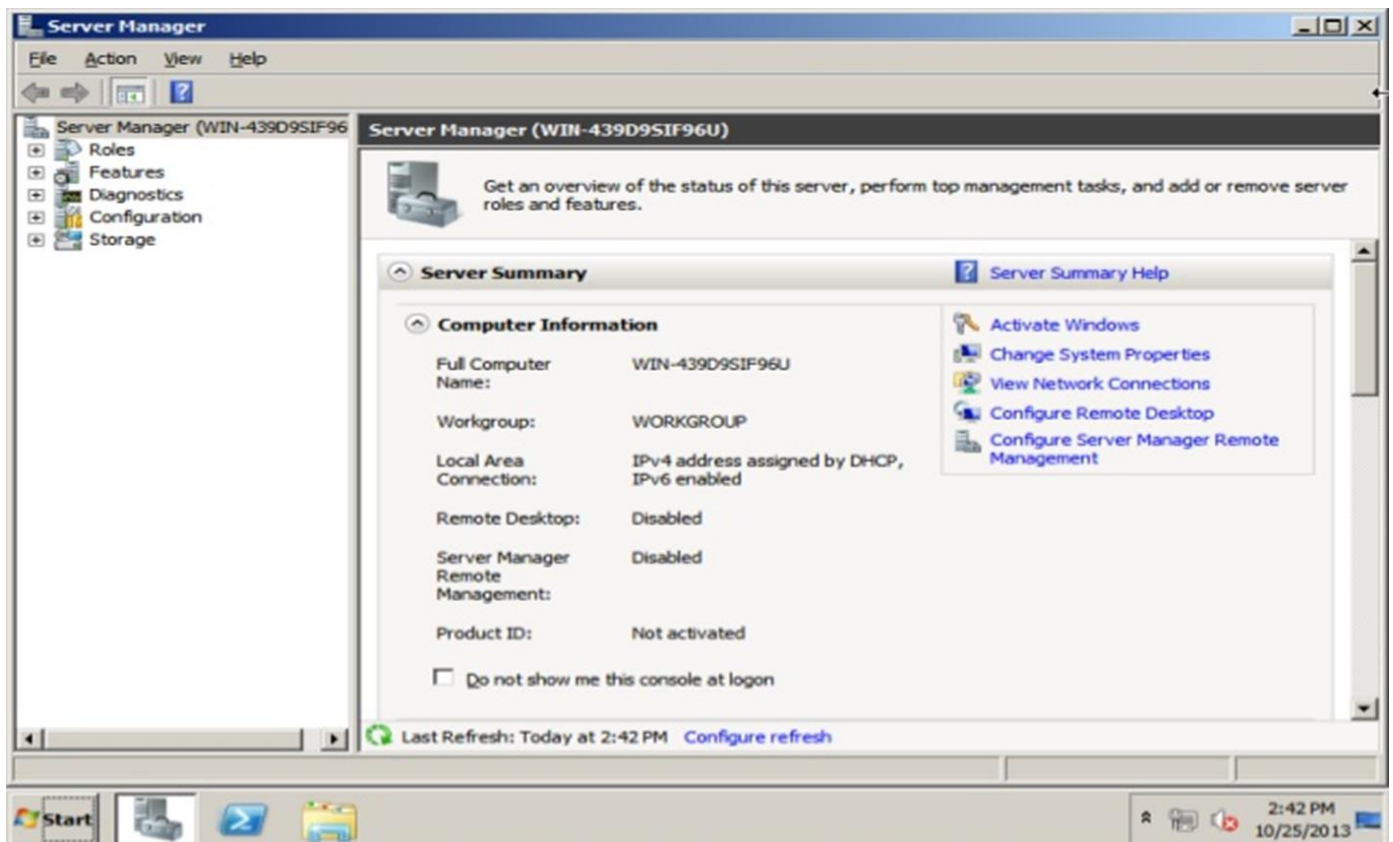


Preparing your desktop as first time log in

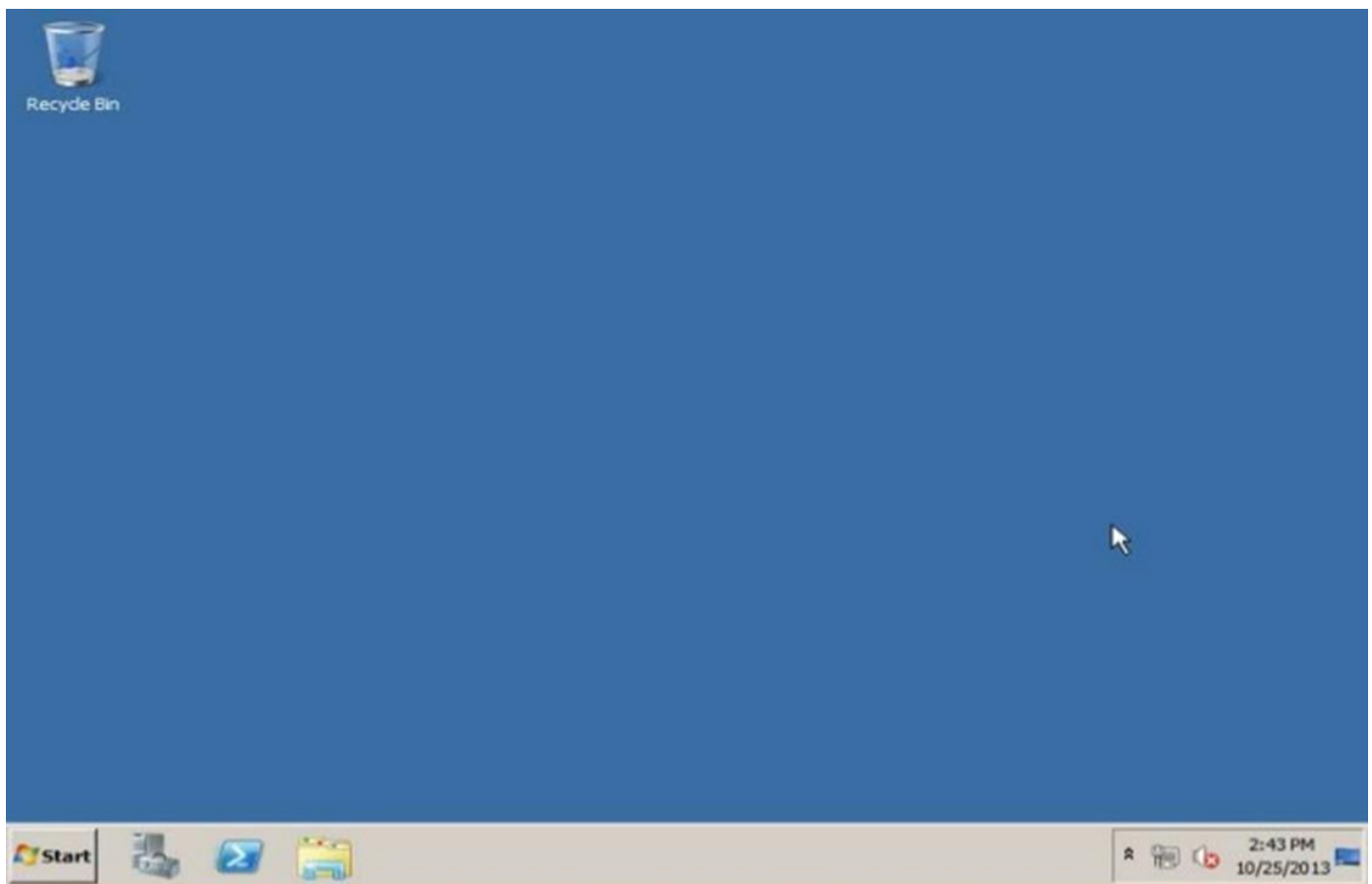




Server manager



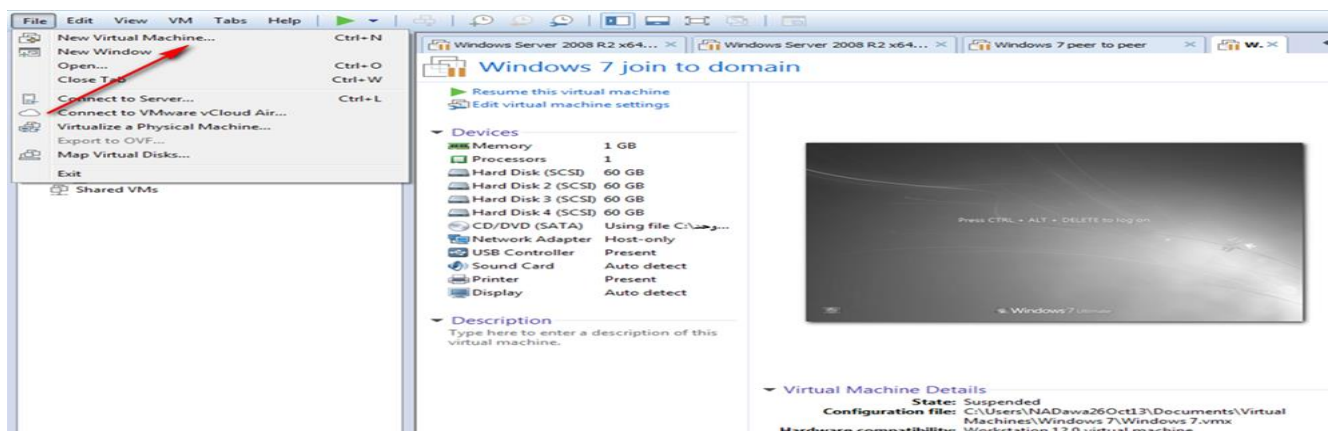
Desktop

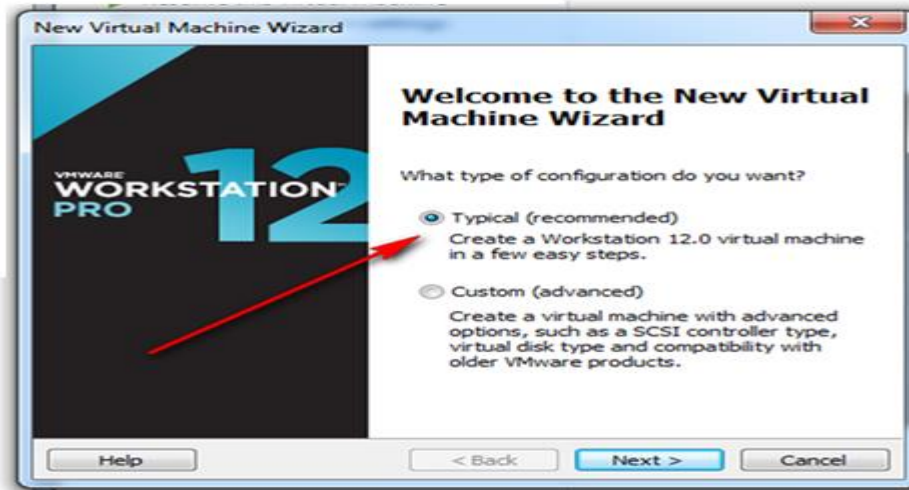


5- Install windows server 2012

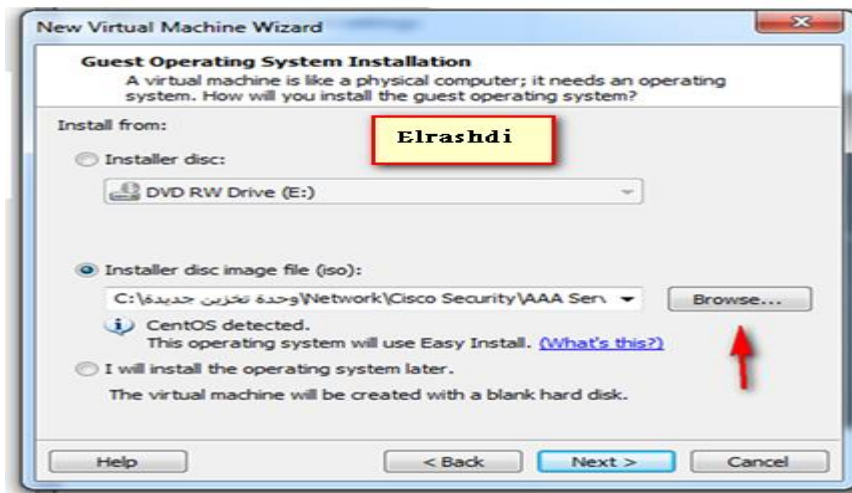
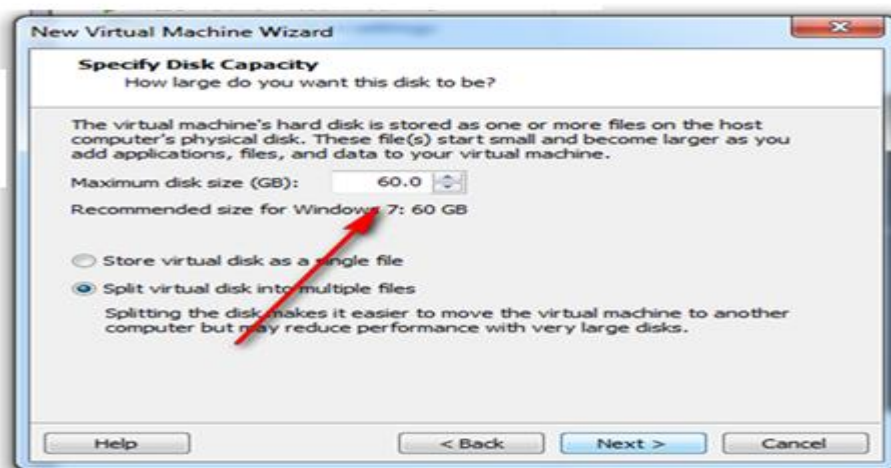
تحميل نظام تشغيل windows server 2012

Create virtual machine on VMware 12

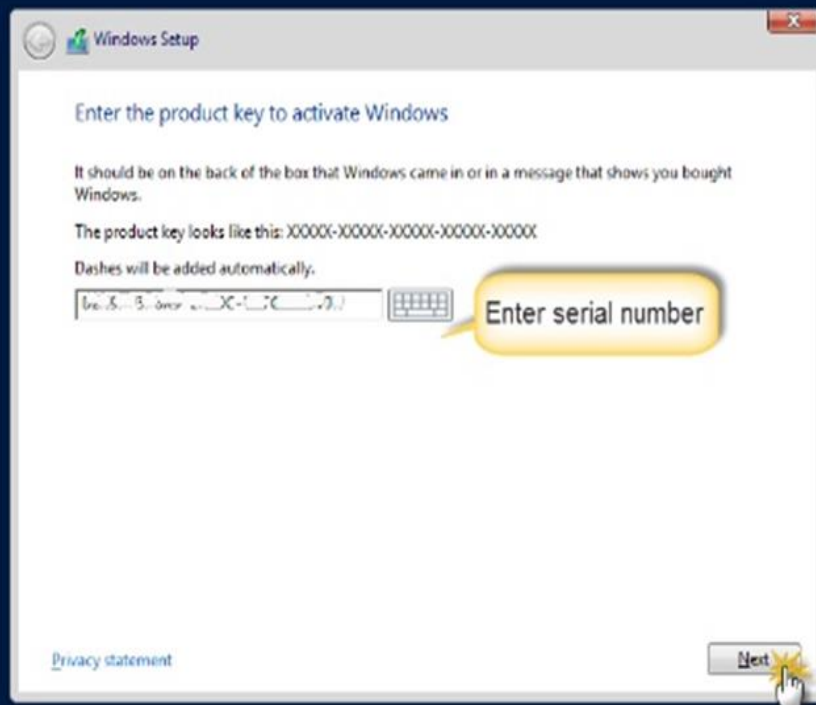


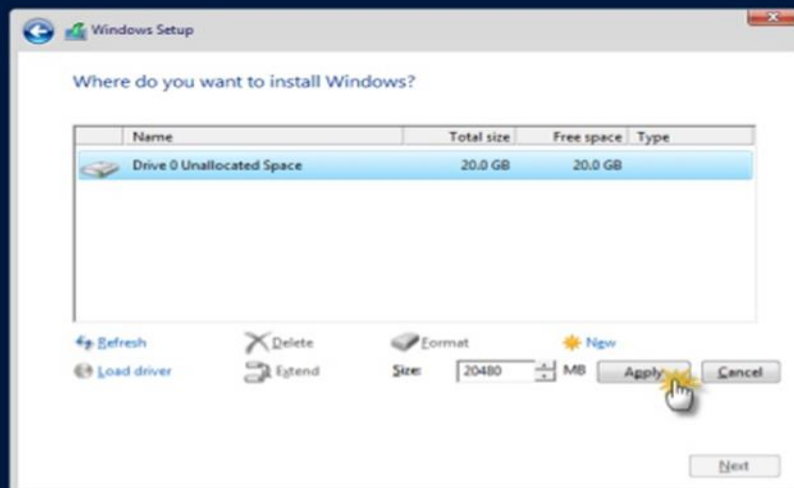
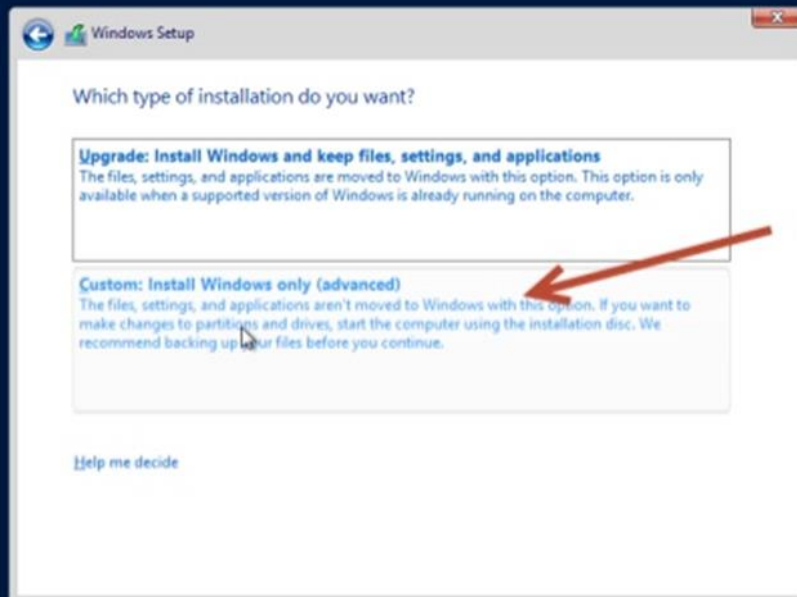


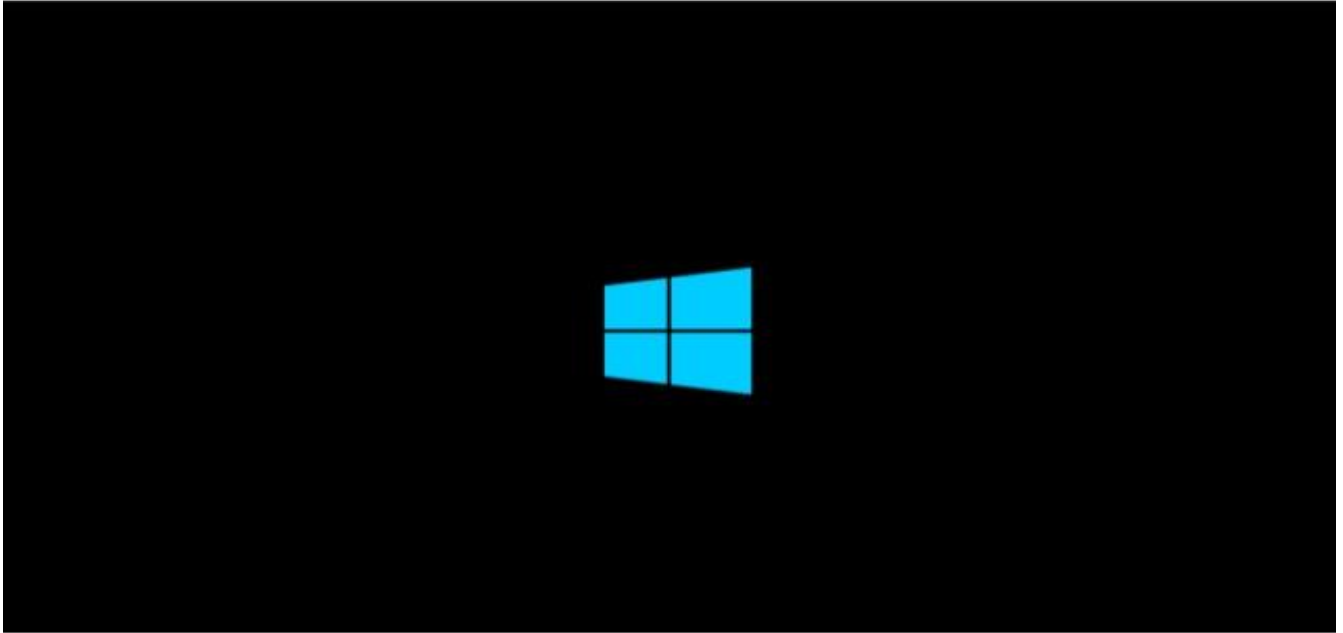
Press browser then Choice image that contains inside it window server 2012R2 if you have DVD contains inside it window server 2012R2 image choice first option (installer disc)



Setup is starting








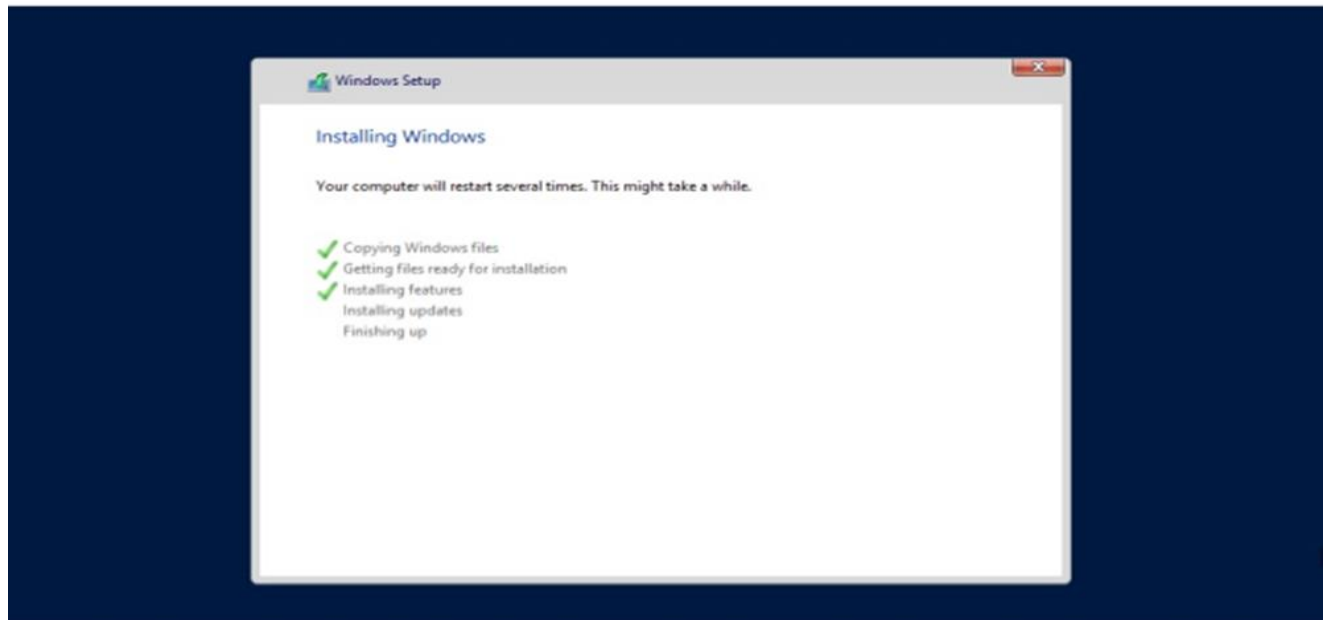
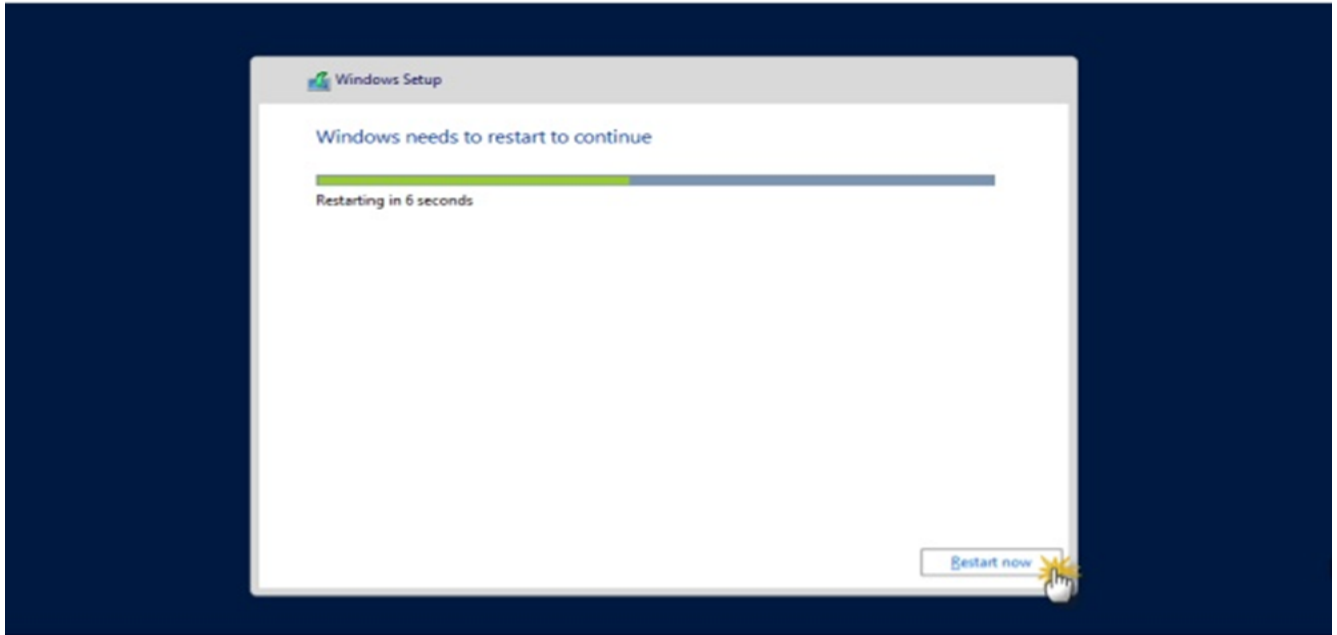


Settings

Type a password for the built-in administrator account that you can use to sign in to this computer.

User name	<input type="text" value="Administrator"/>
Password	<input type="password" value="....."/>
Reenter password	<input type="password" value="....."/> 



Press Ctrl+Alt+Delete to sign in.

11:19

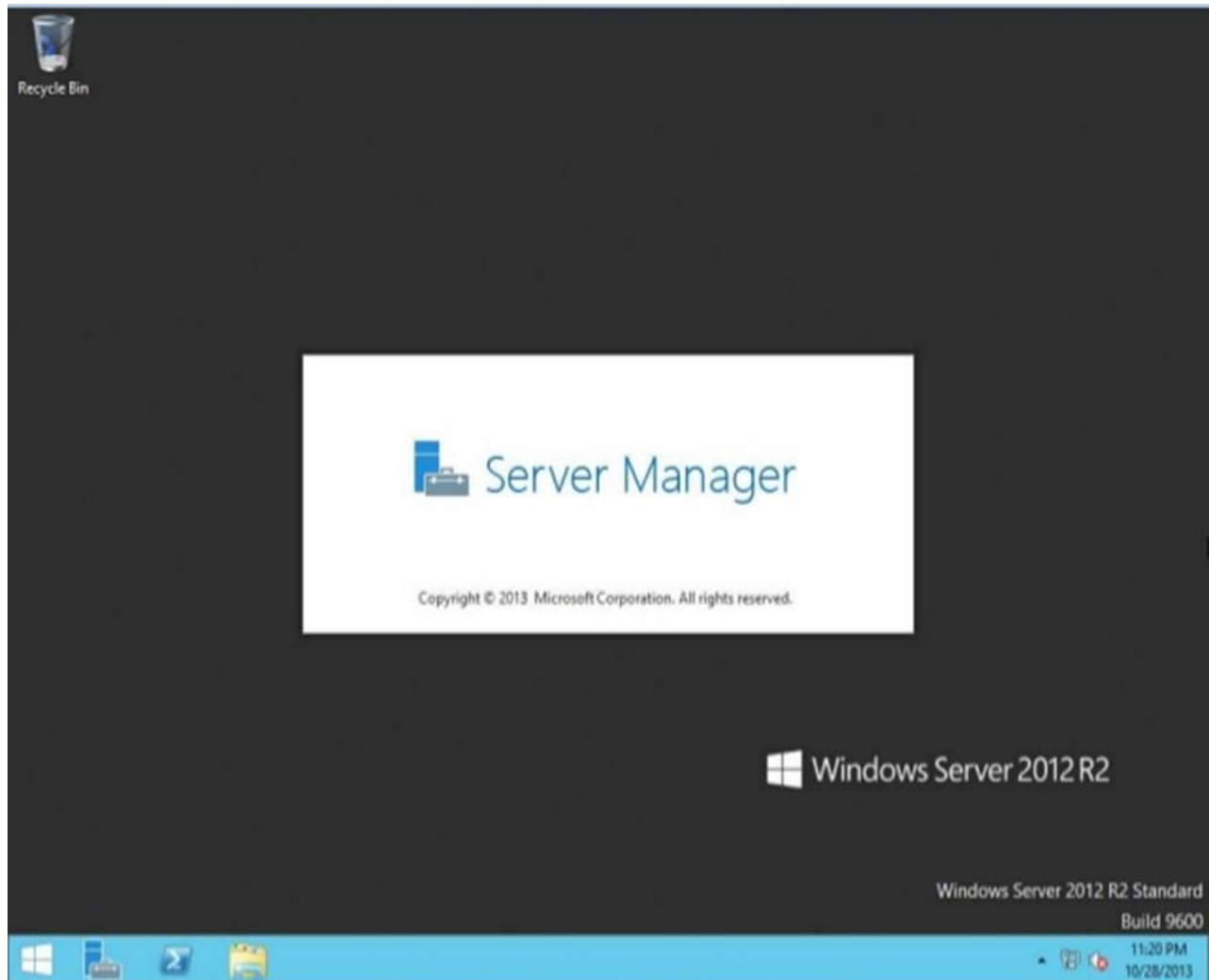
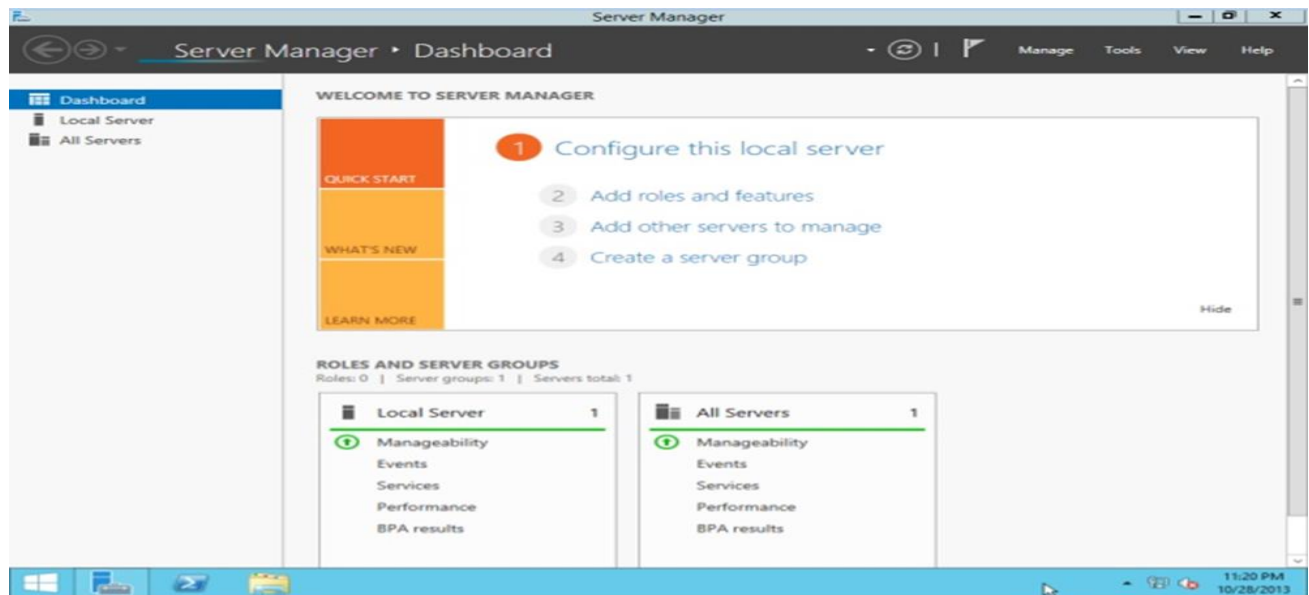
Monday, October 28



Administrator



 Windows Server 2012 R2

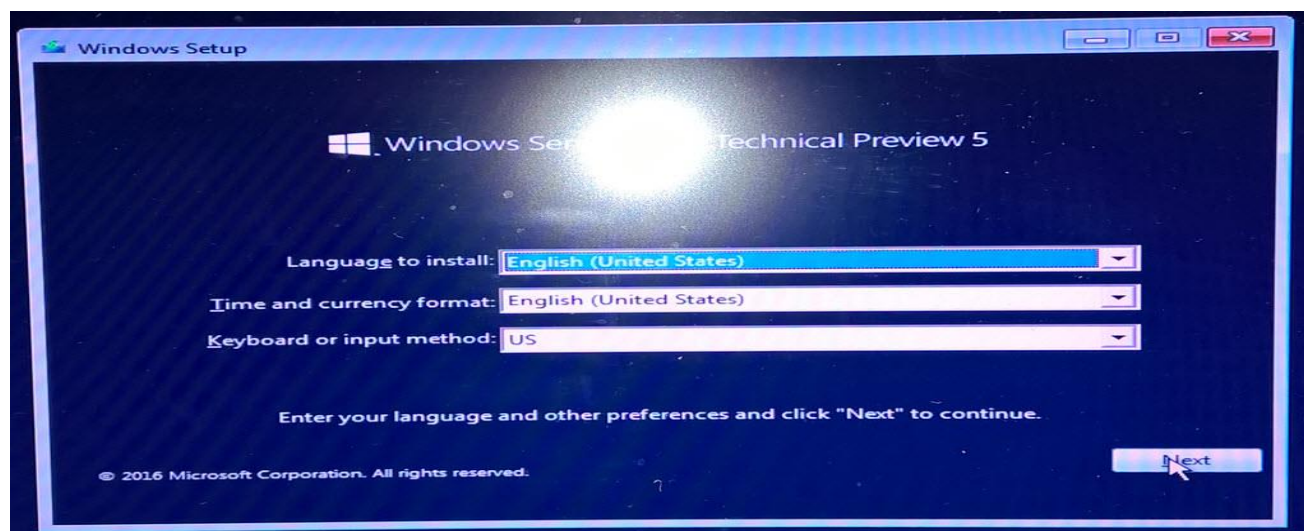


6- Install windows server 2016

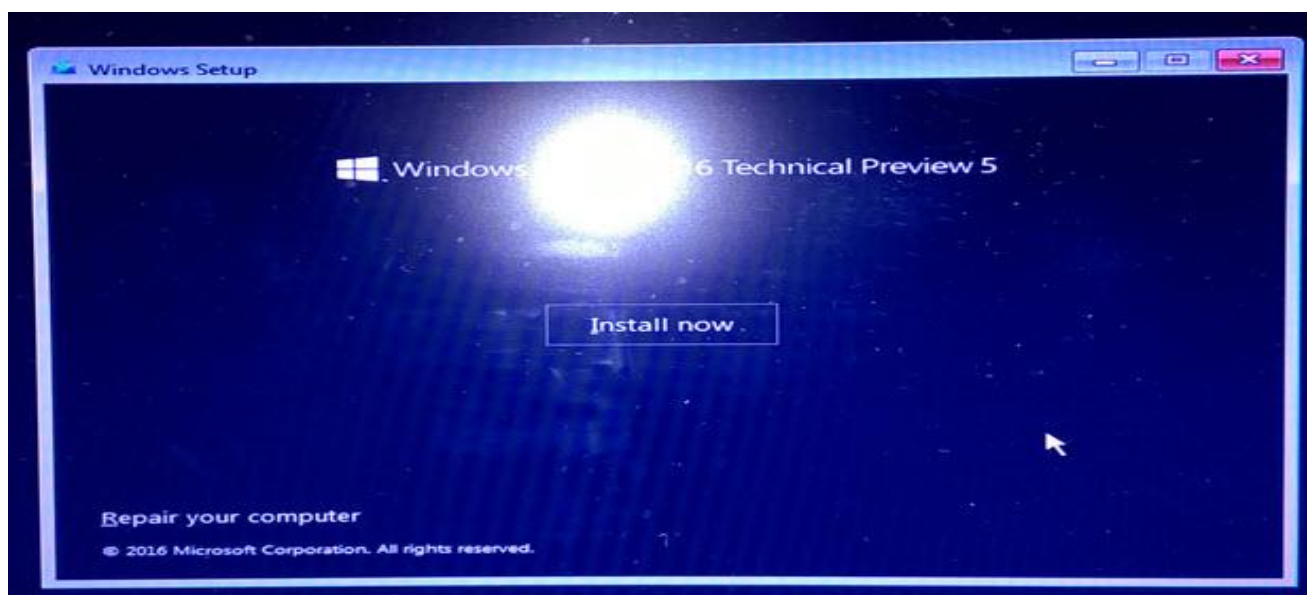
تحميل نظام تشغيل windows server 2016

Insert Windows Server 2016 DVD and boot your computer from the DVD. Boot to the DVD/USB ISO (you may have to go into bios or interrupt boot to boot from external media).

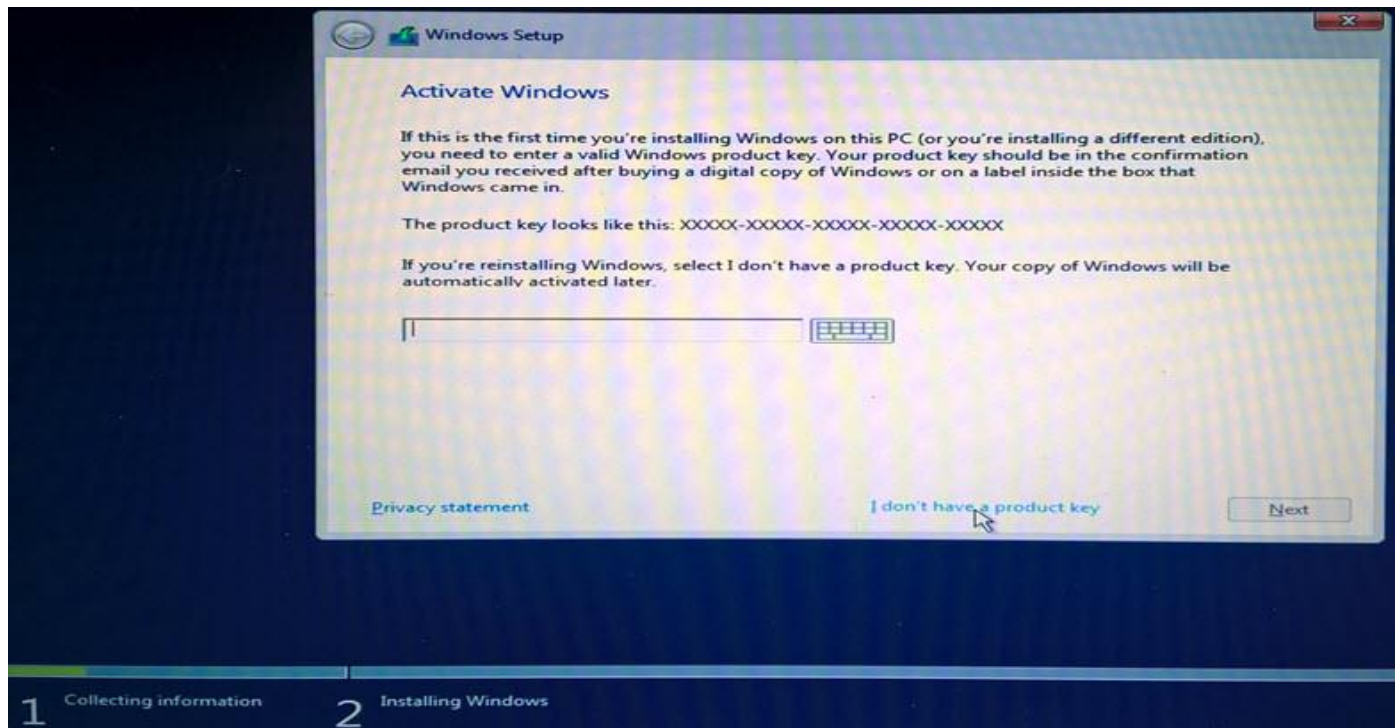
Click the Next Button



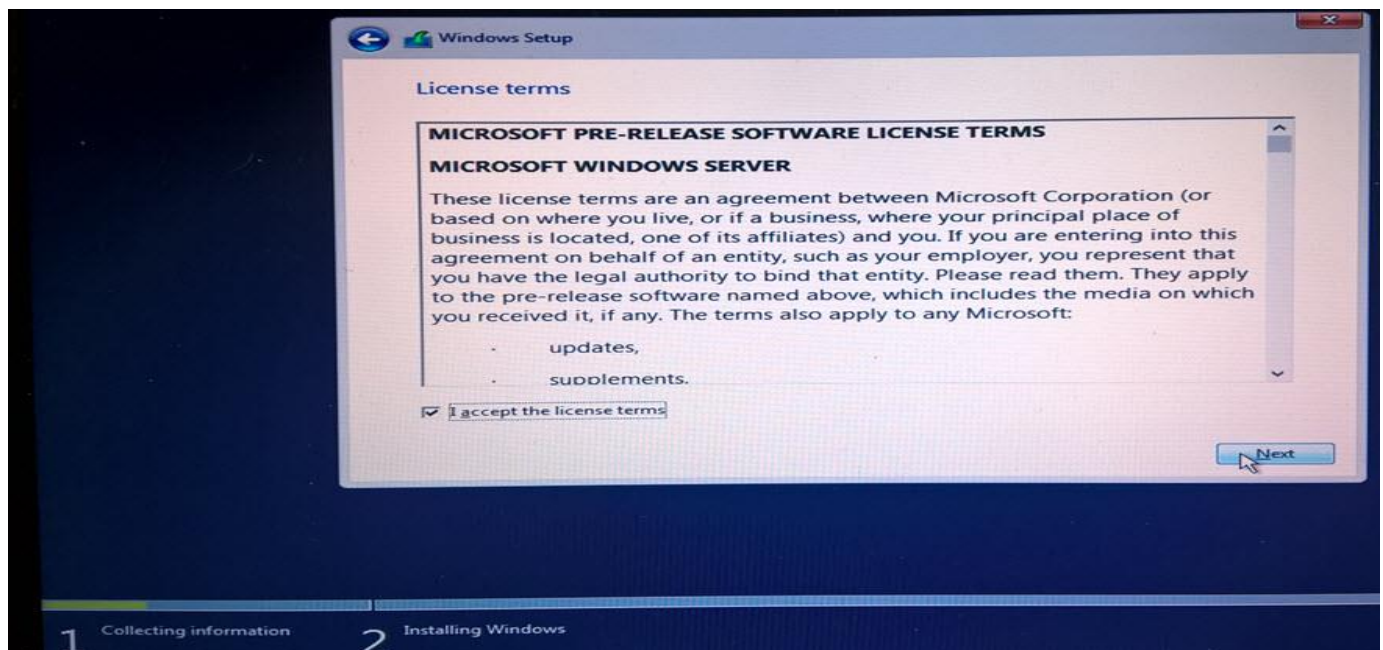
Click the Install now Button

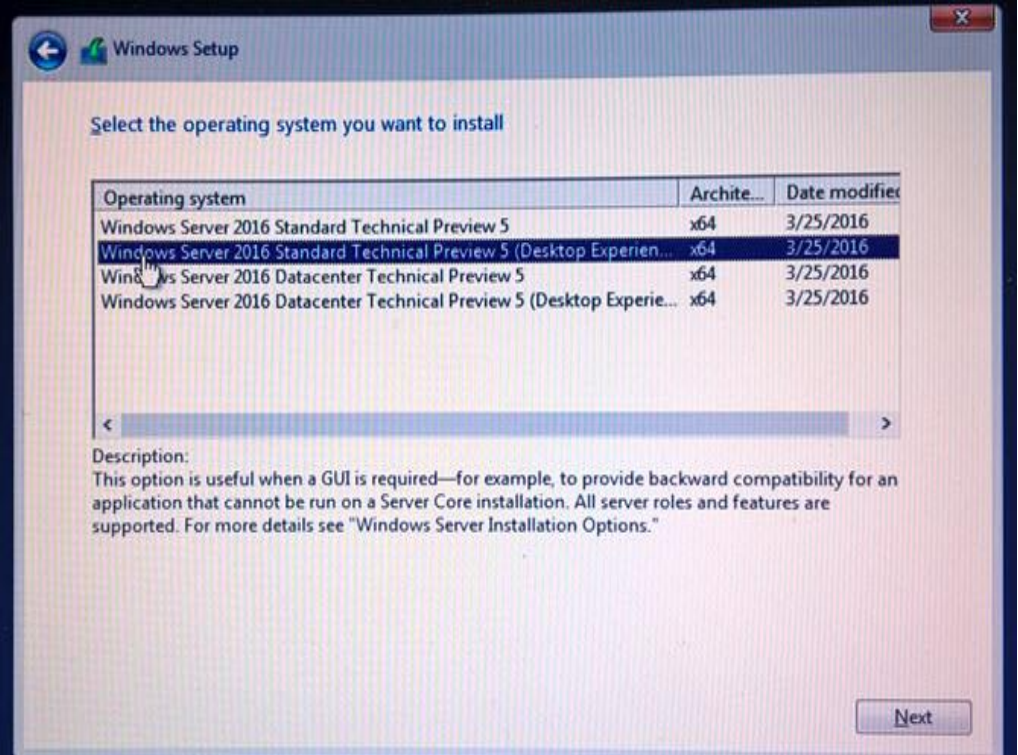


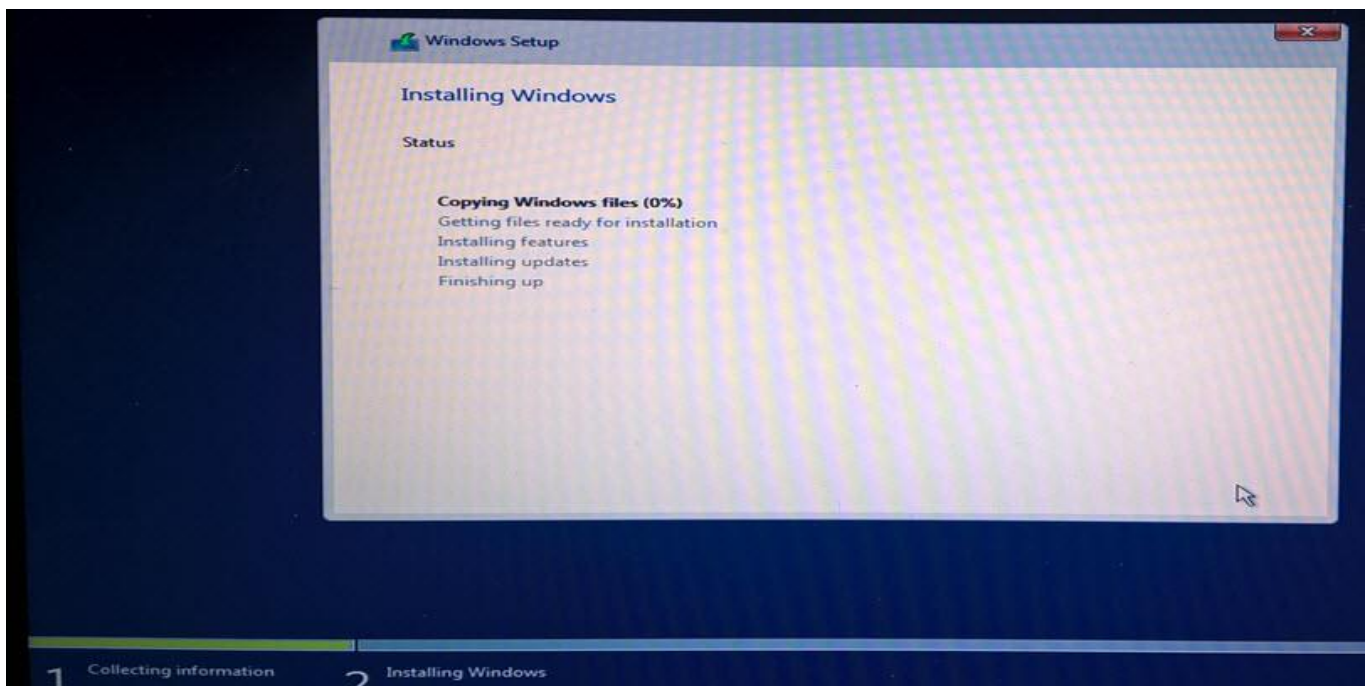
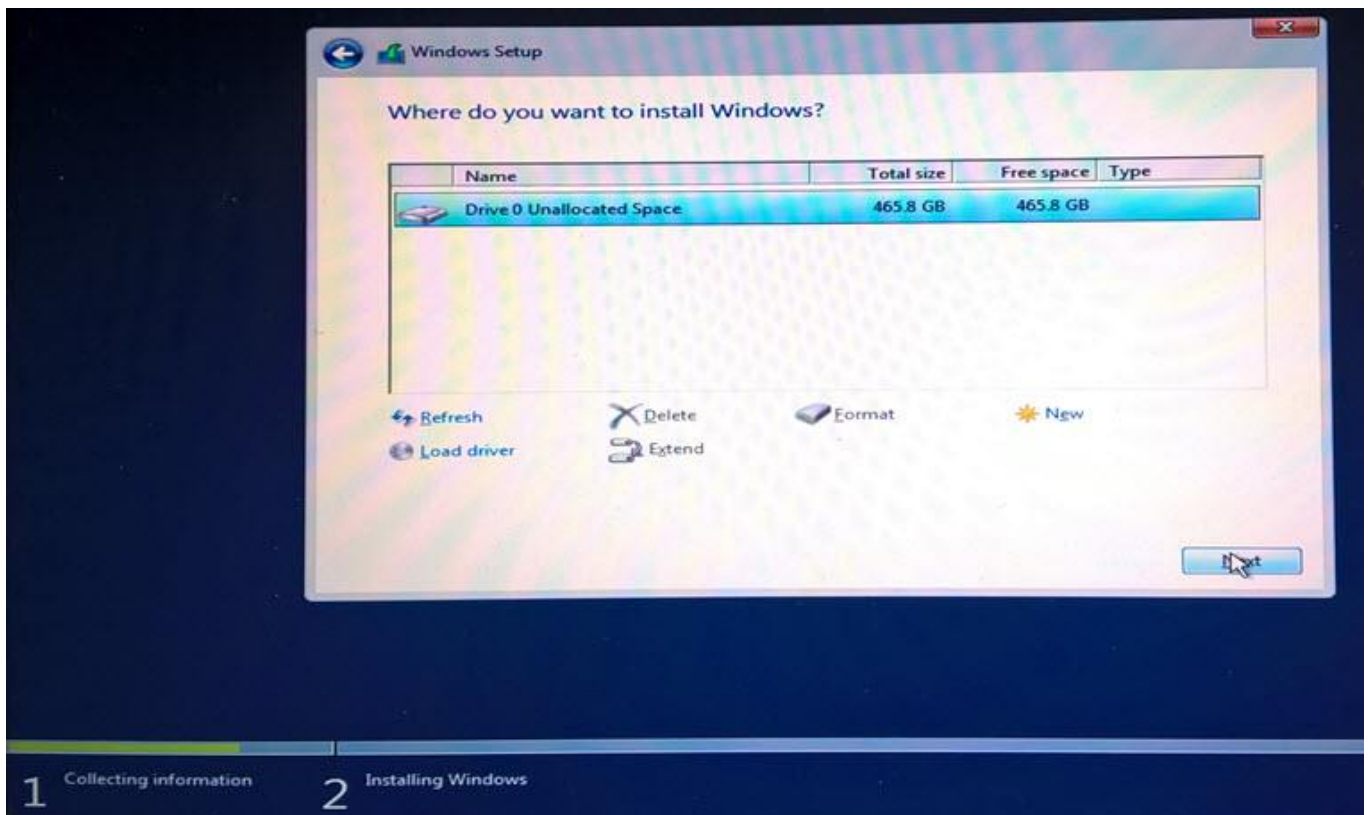
Optionally, enter your product key then Next or click I don't have a product key



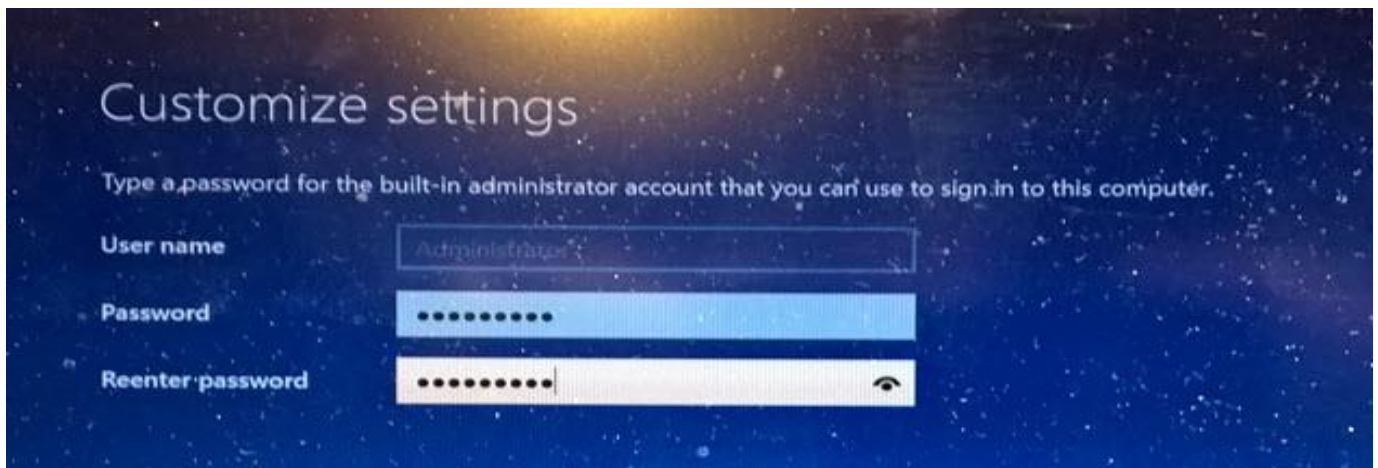
Read the license terms. Click on I accept the license terms then Click the Next button.



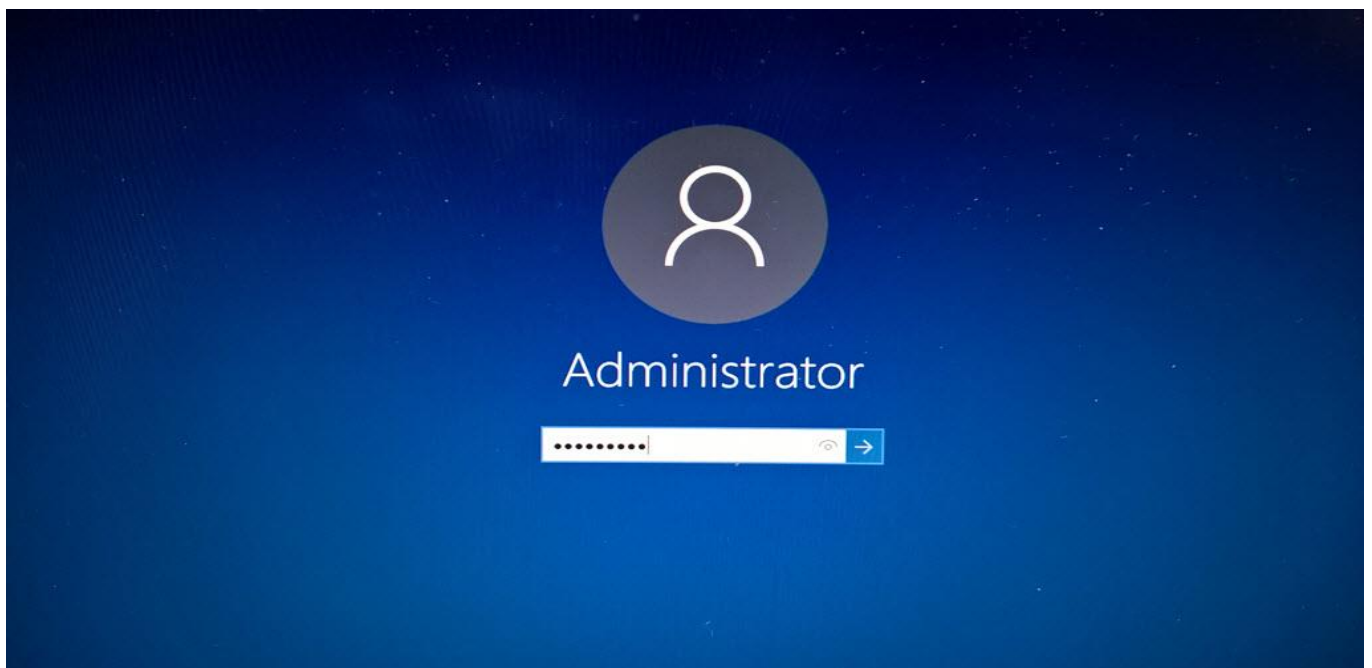




Enter a password for the administrator account into the password and Reenter password fields then click Finish



Press [CTRL-ALT-DEL] to bring up the login screen



7-Disk management

تعمل إدارة الأقراص داخل نظام تشغيل الشبكات على التحكم في جميع الوظائف الخاصة بالأقراص (حذف، توسيع، تقسيم، إنشاء....الخ)

7.1- Disk management in window server 2008

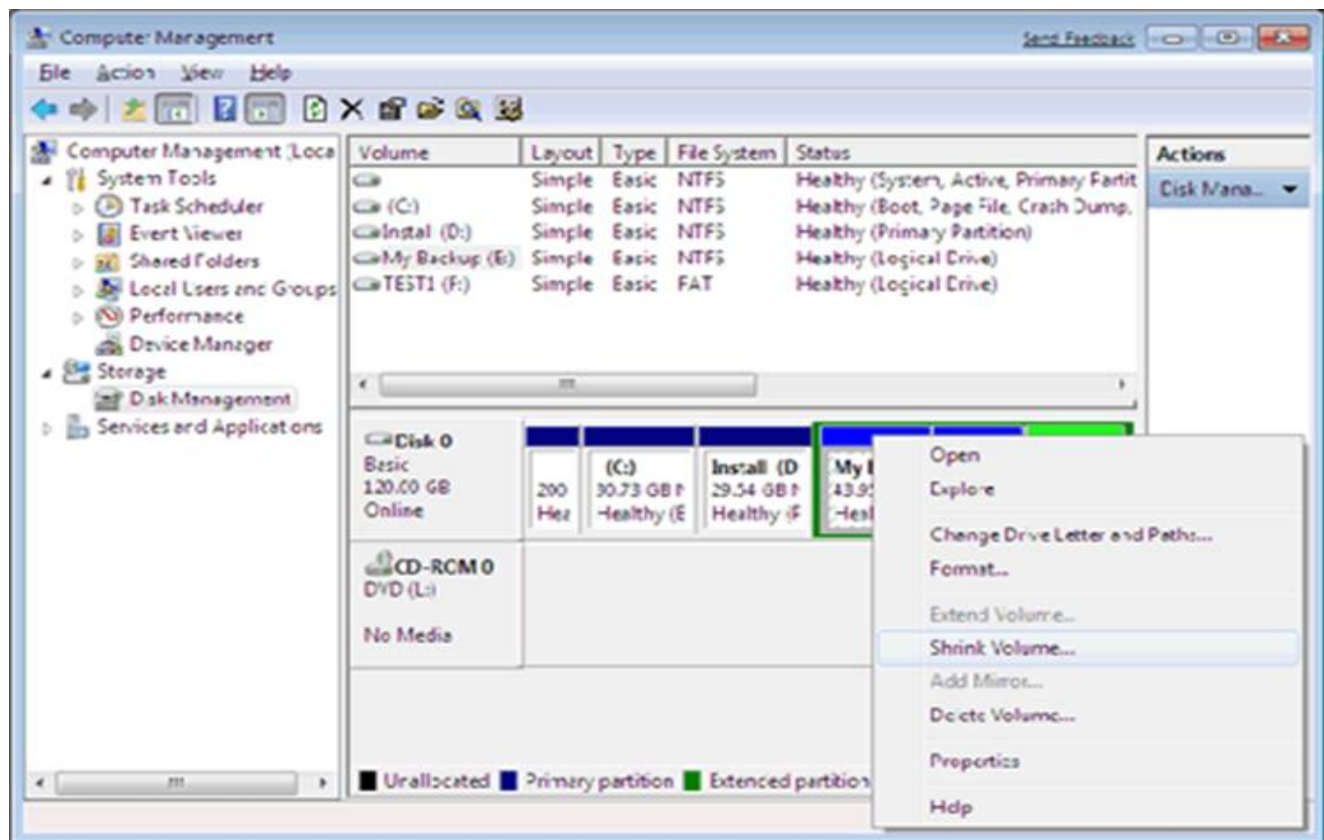
إدارة الأقراص في نظام تشغيل window server 2008

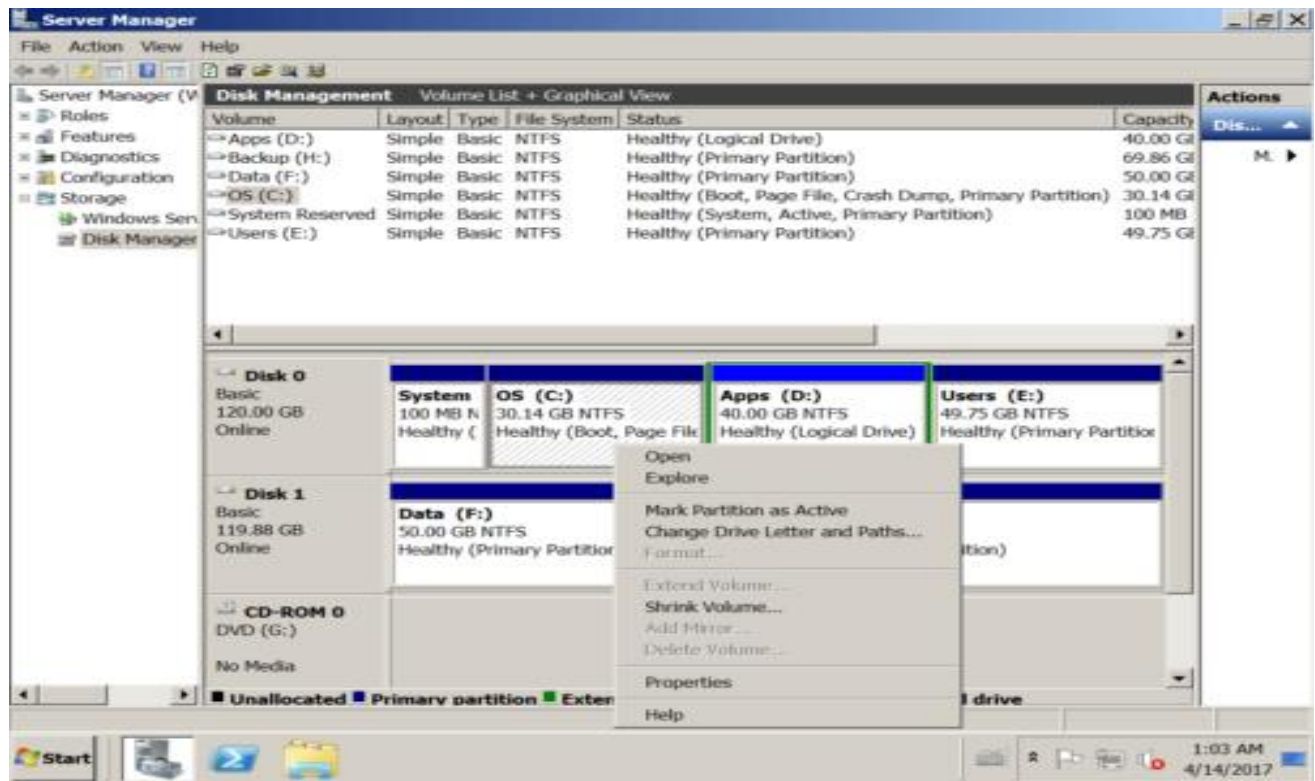
Resize Server 2008 partition with Disk Management

To shrink Windows Server 2008 volume, right click on the volume that you want to resize and select the option

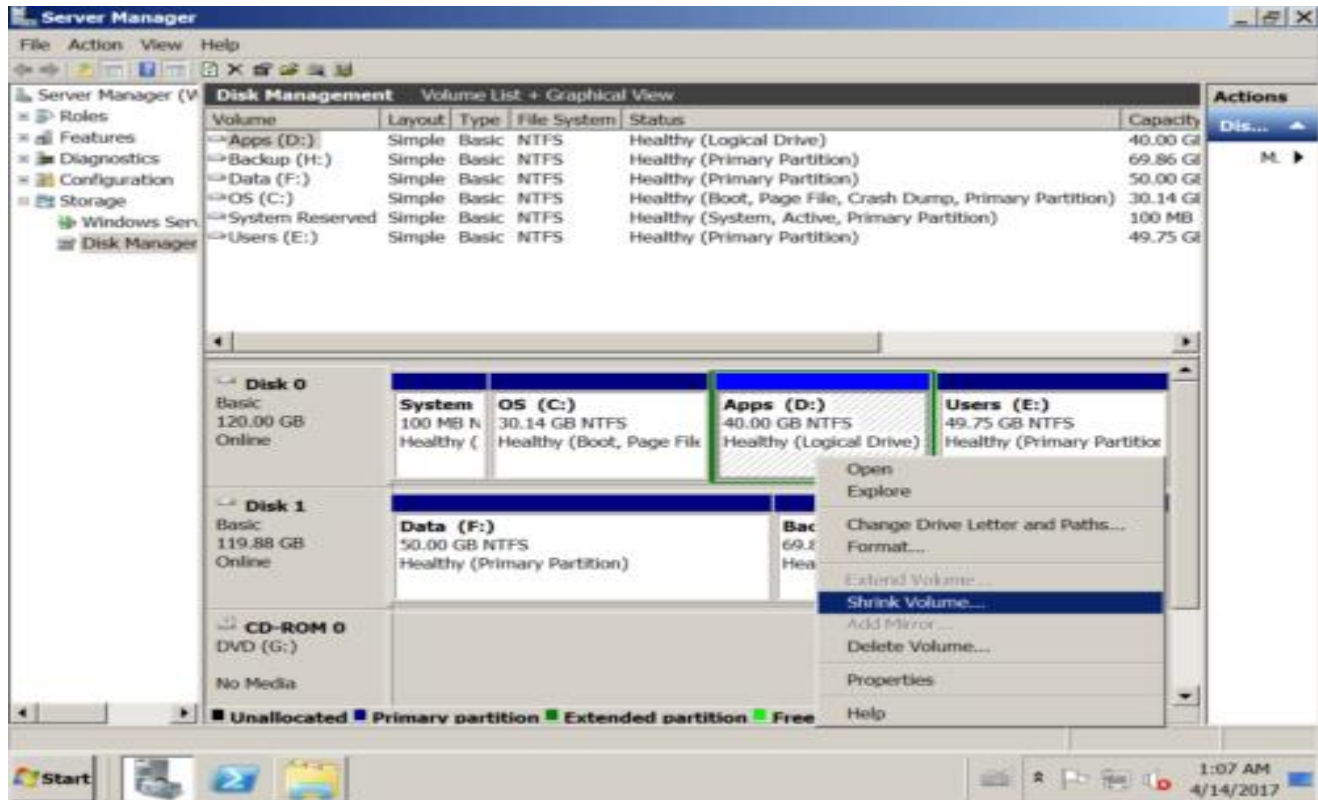
7.1.1- Shrink Volume

تقليص المساحة الفارغة من القرص

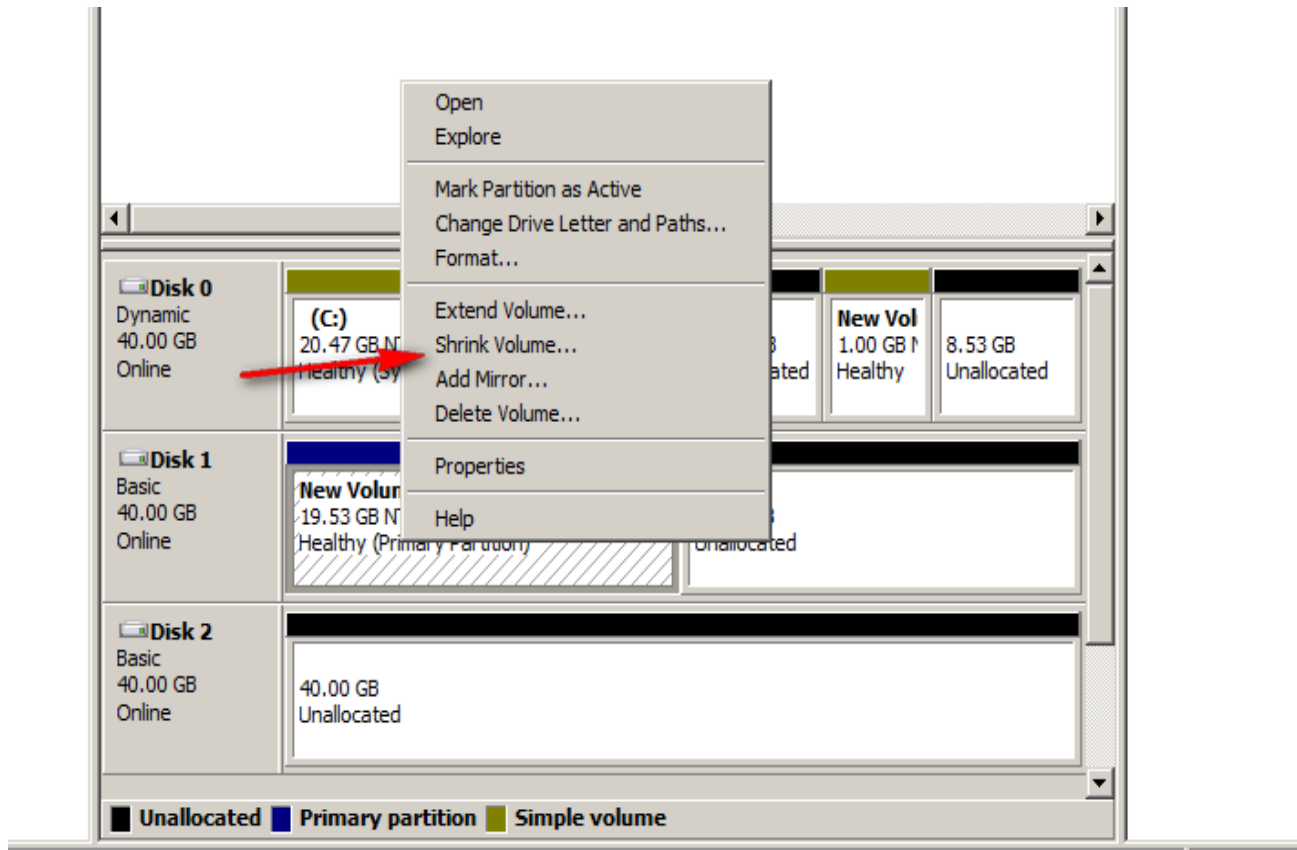




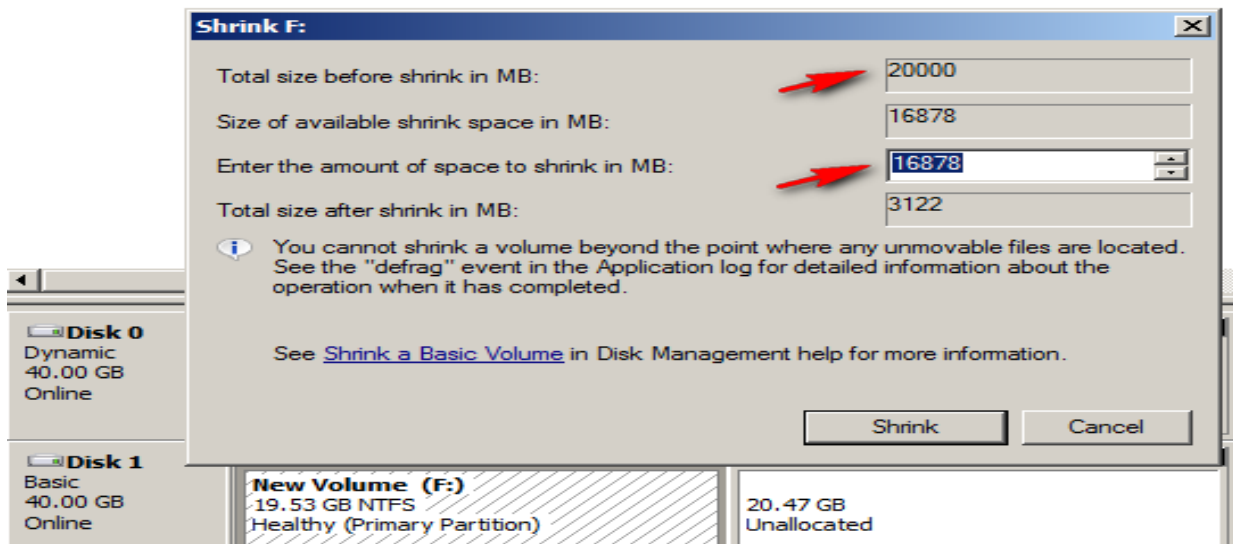
Try to decrease D drive with built-in Shrink Volume function.

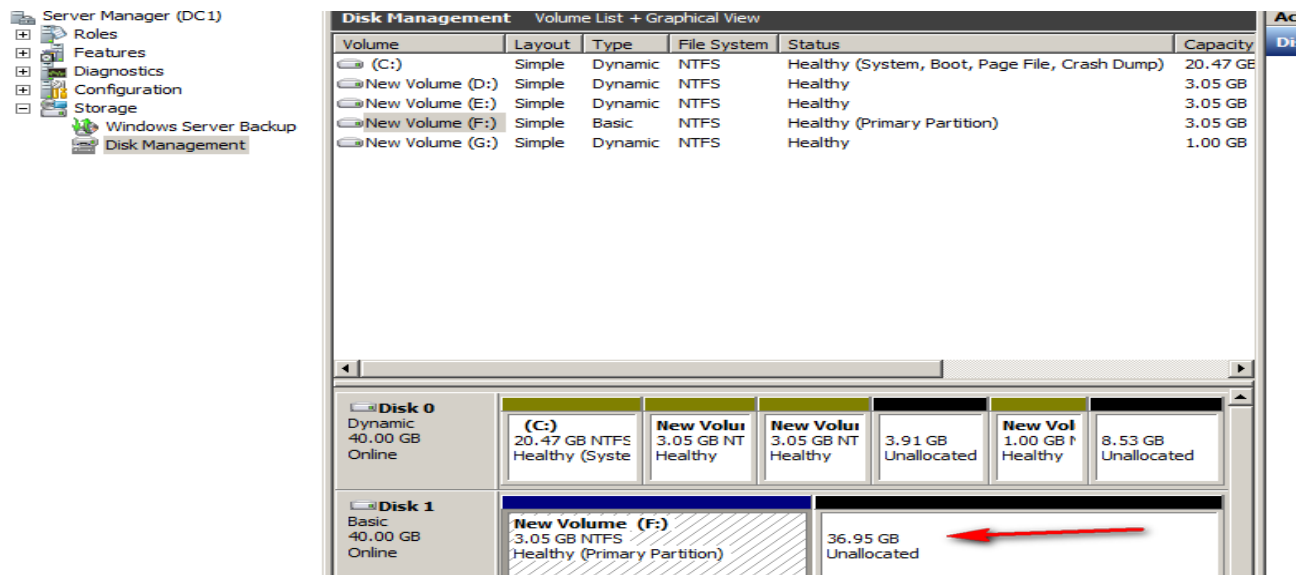


10GB free space shrink from D.



Disk Management Volume List + Graphical View					
Volume	Layout	Type	File System	Status	Capacity
(C:)	Simple	Dynamic	NTFS	Healthy (System, Boot, Page File, Crash Dump)	20.47 GB
New Volume (D:)	Simple	Dynamic	NTFS	Healthy	3.05 GB
New Volume (E:)	Simple	Dynamic	NTFS	Healthy	3.05 GB
New Volume (F:)	Simple	Basic	NTFS	Healthy (Primary Partition)	19.53 GB
New Volume (G:)	Simple	Dynamic	NTFS	Healthy	1.00 GB



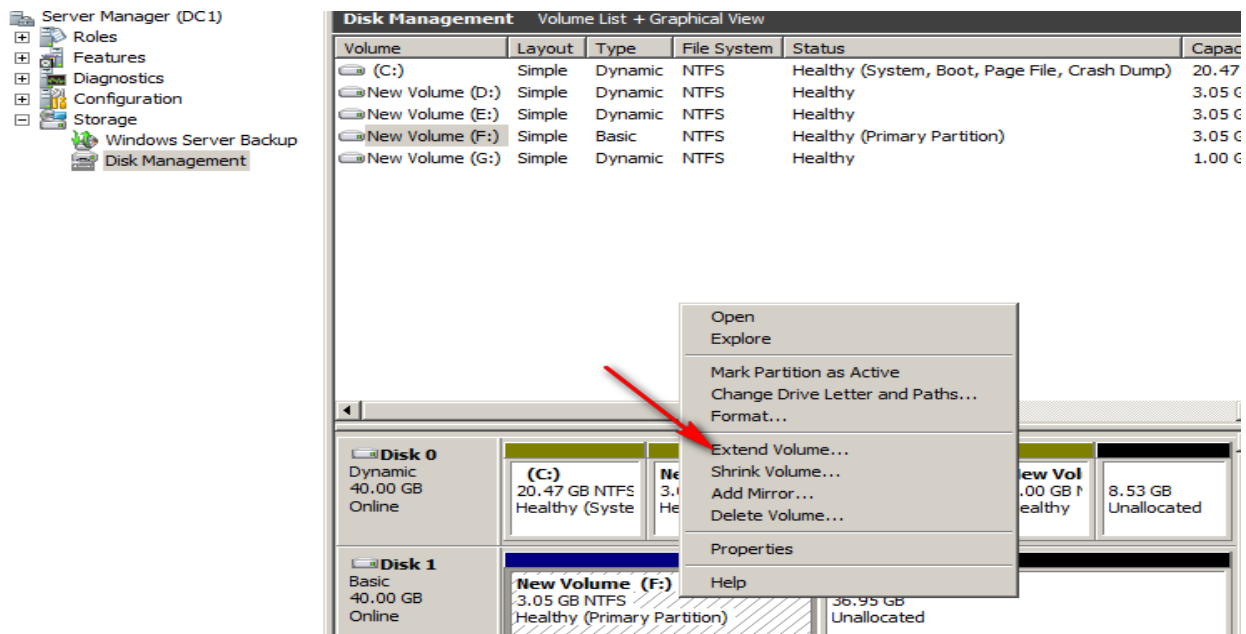


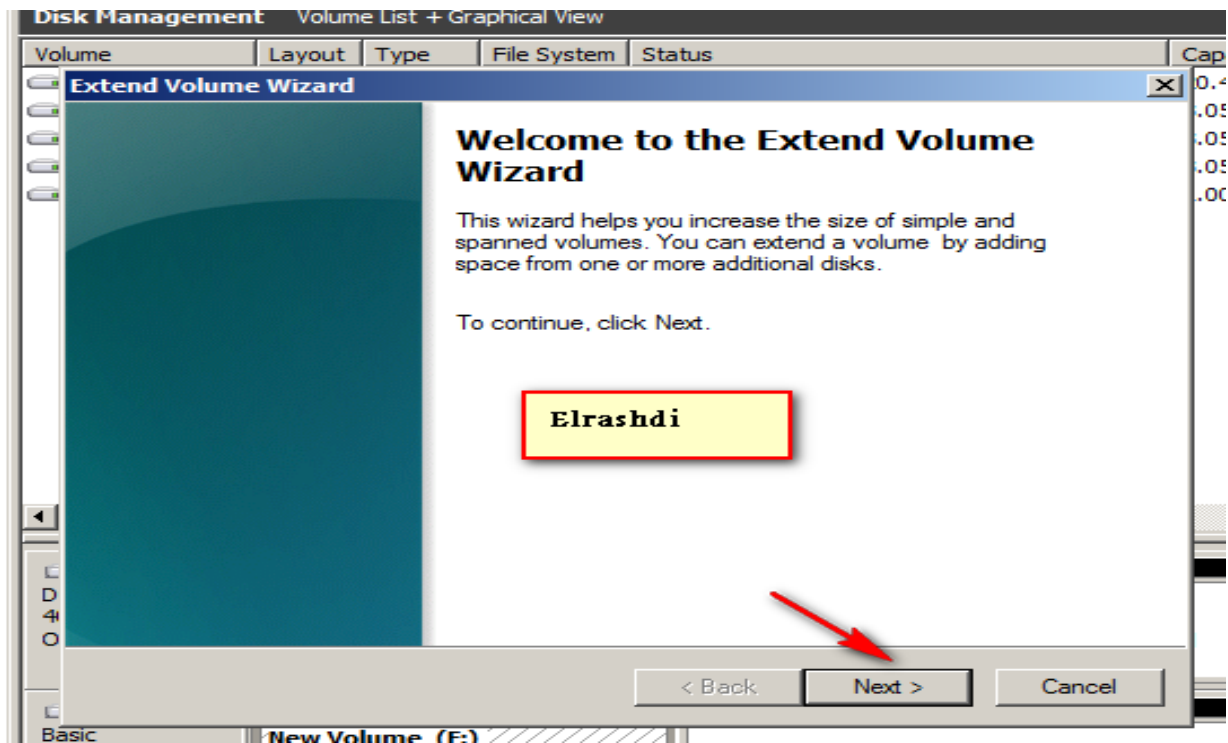
7.1.2- Extended Volume

زيادة حجم القرص الصلب

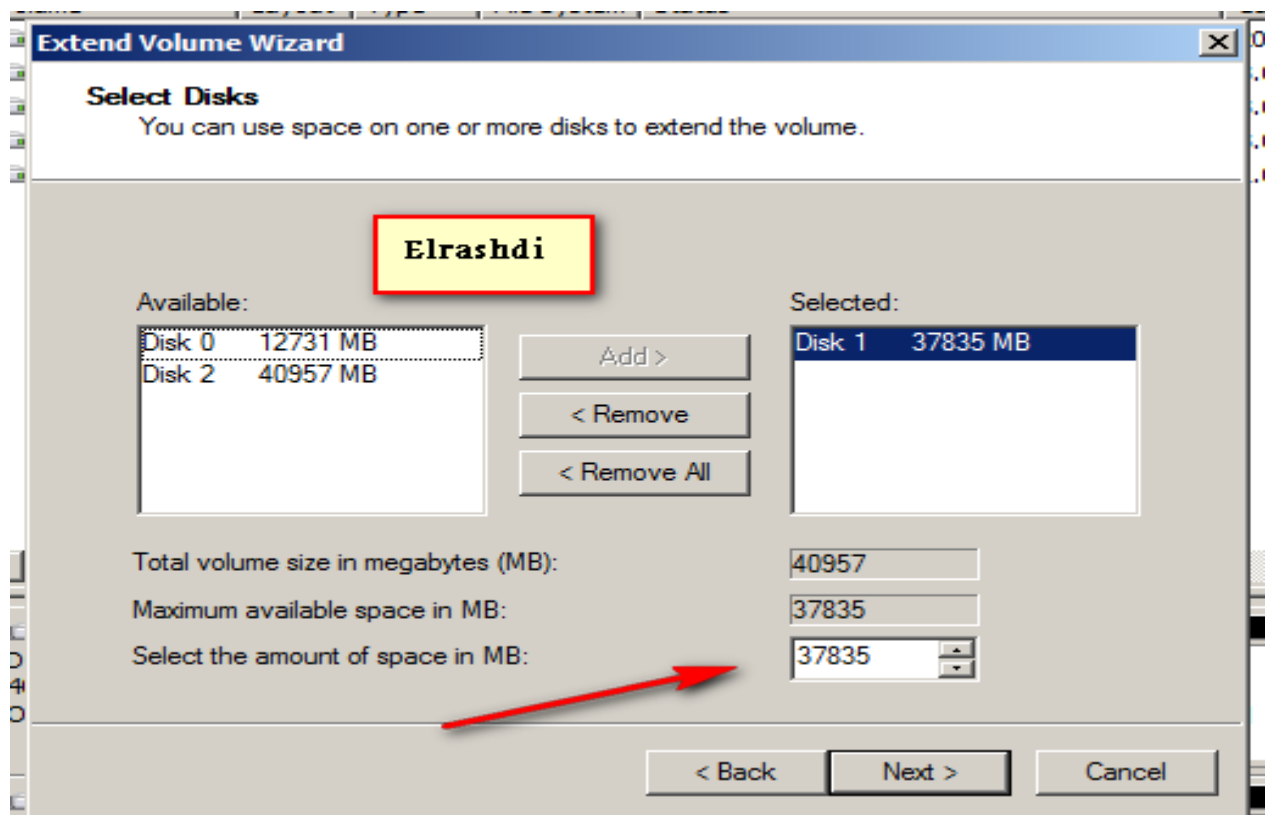
To extend Windows Server 2008 volume, right click on the volume to be extended and select "Extend Volume" and then specify the amount of space by which you want to extend the volume.

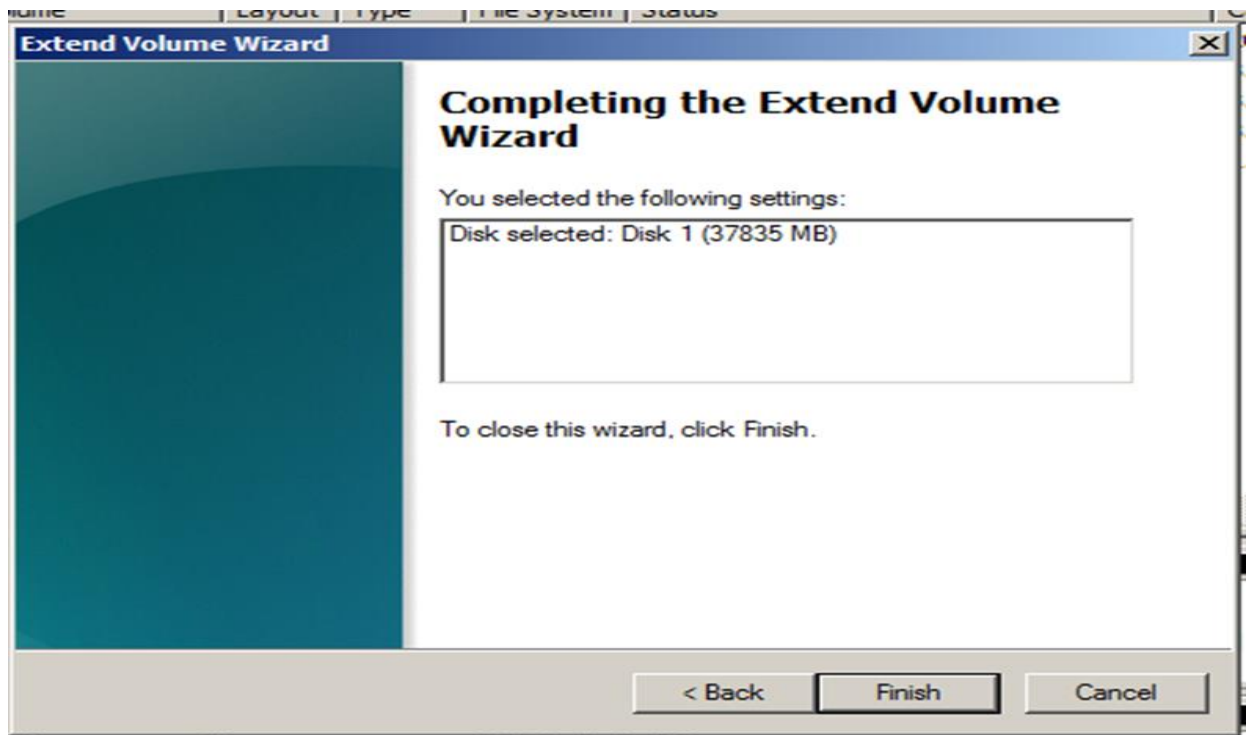
Now extend volume becomes available.





تحديد حجم المساحة المراد زيادتها



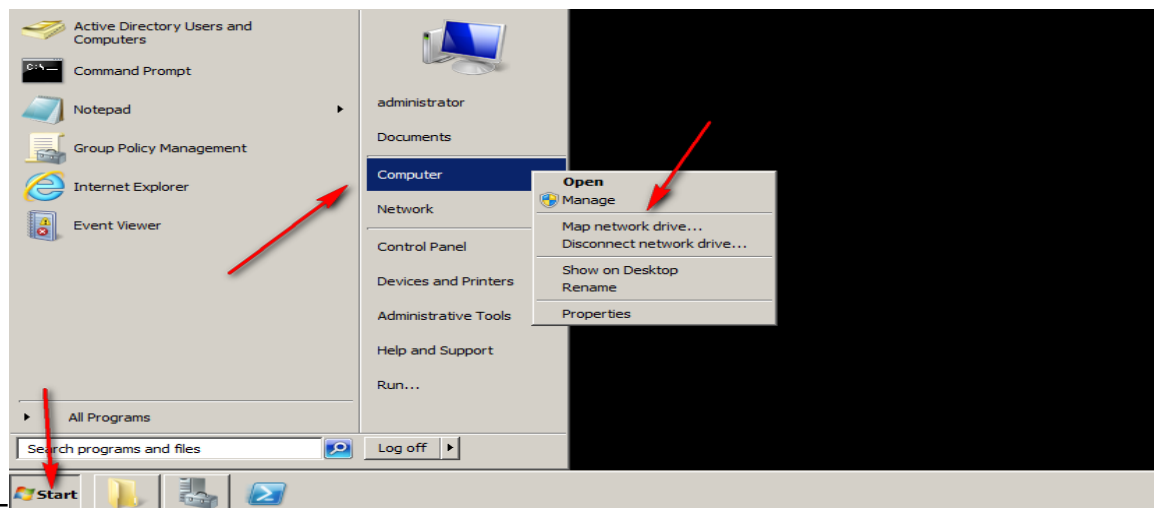


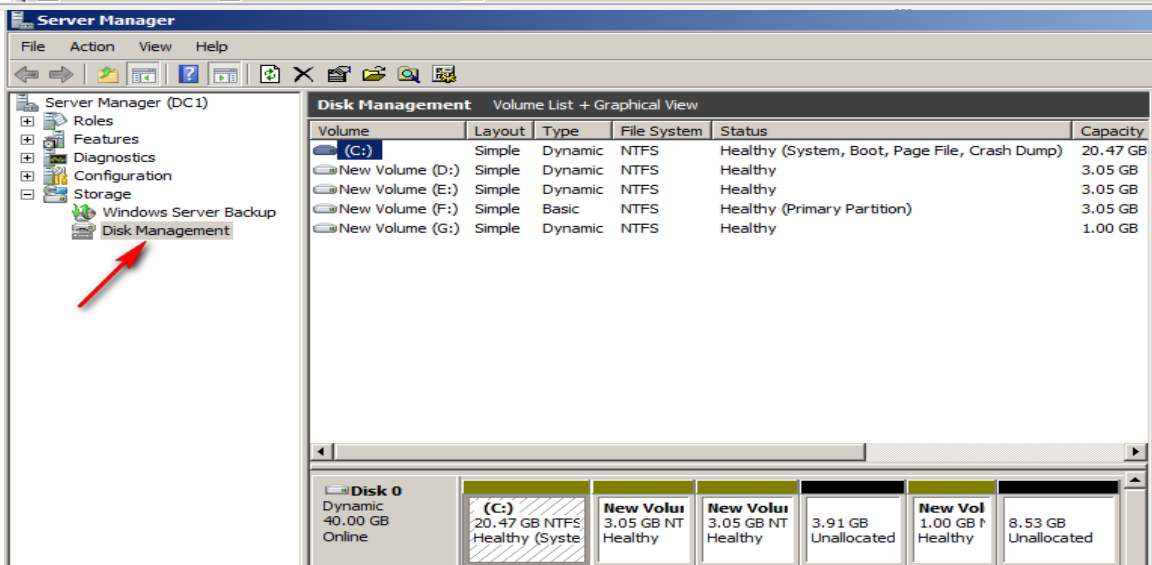
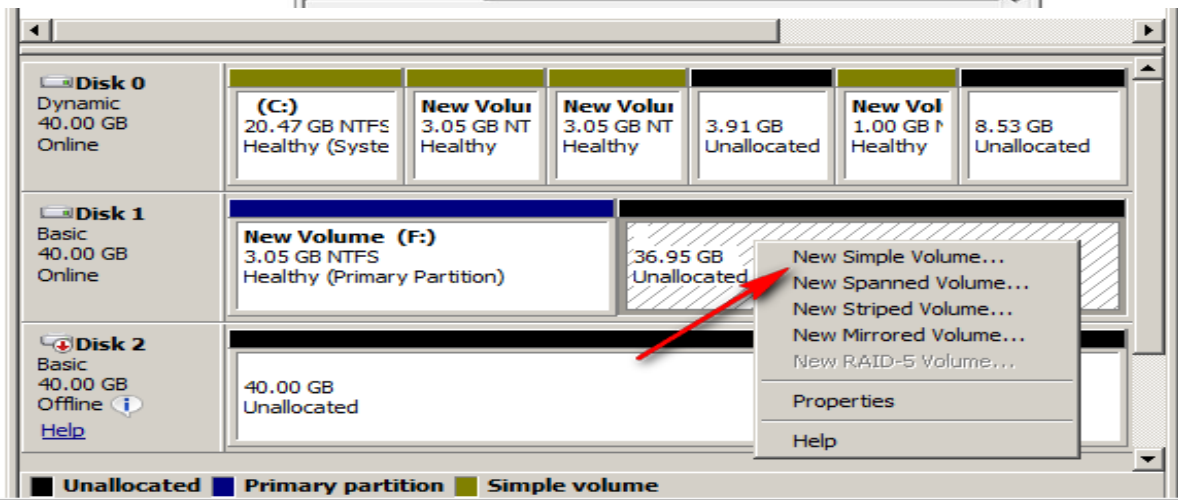
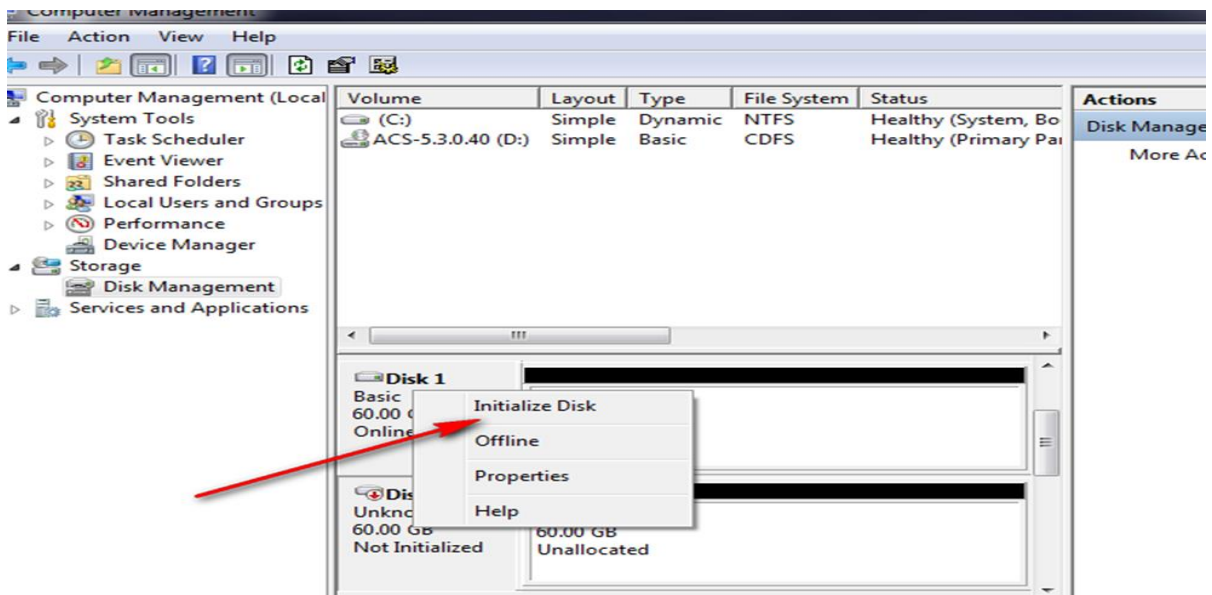
7.1.3- Simple Volume

انشاء New simple

يمكن من طريقه عمل Volume في نفس القرص بمساحات مختلفة

Create new simple volume in window server 2008





New Simple Volume Wizard

Specify Volume Size
Choose a volume size that is between the maximum and minimum sizes.

Maximum disk space in MB: 30041

Minimum disk space in MB: 8

Simple volume size in MB: 30041

< Back Next > Cancel

New Simple Volume Wizard

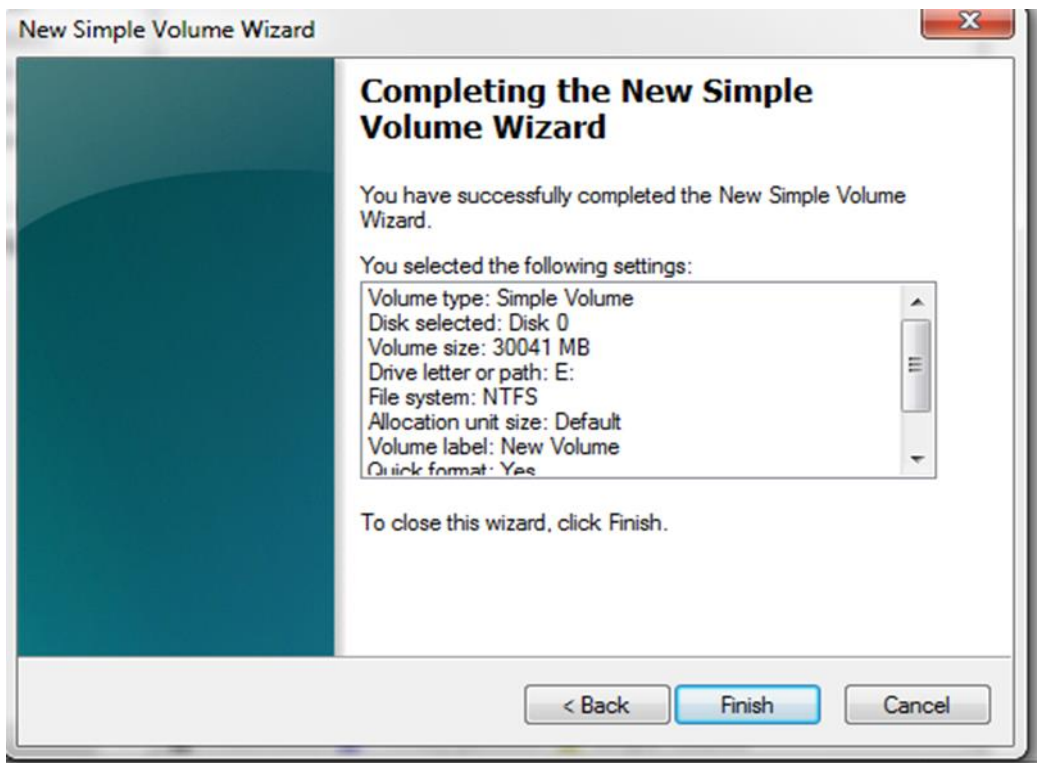
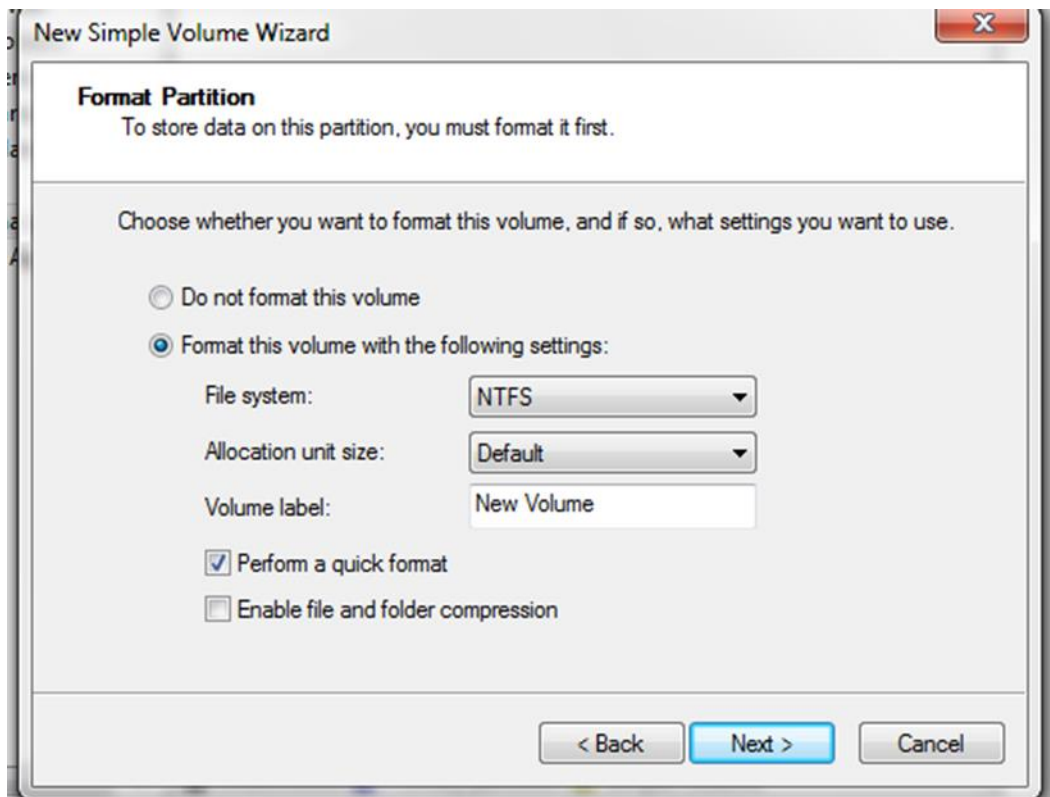
Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your partition.

☒ Assign the following drive letter: E

☐ Mount in the following empty NTFS folder:
Browse...

☐ Do not assign a drive letter or drive path

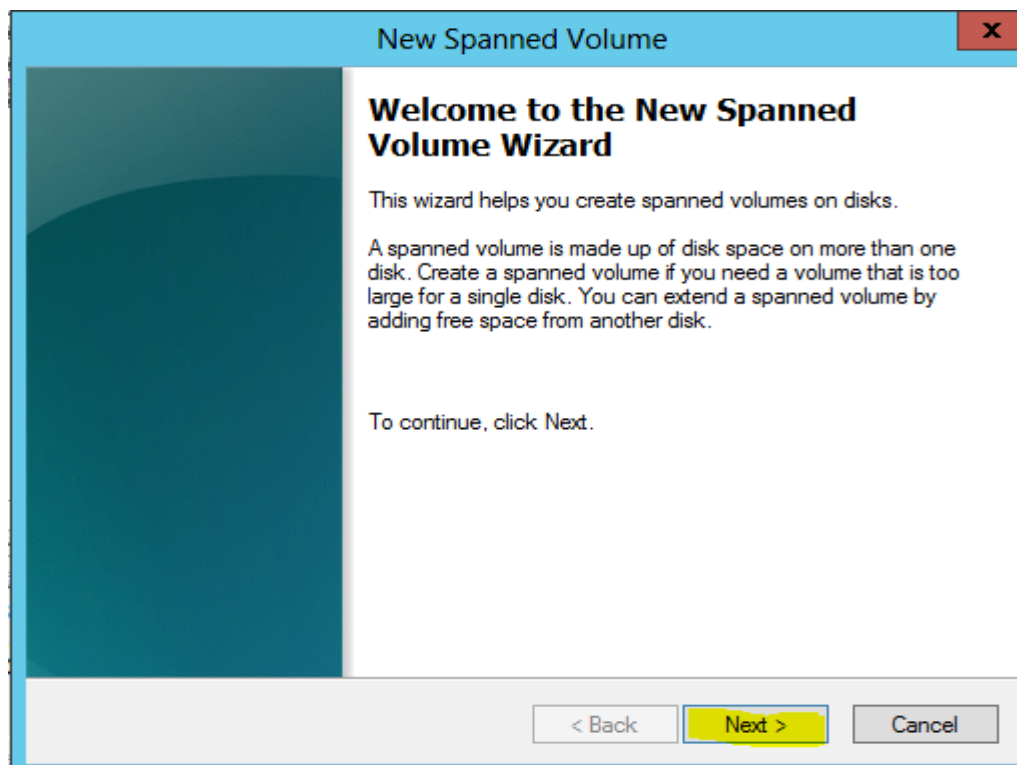
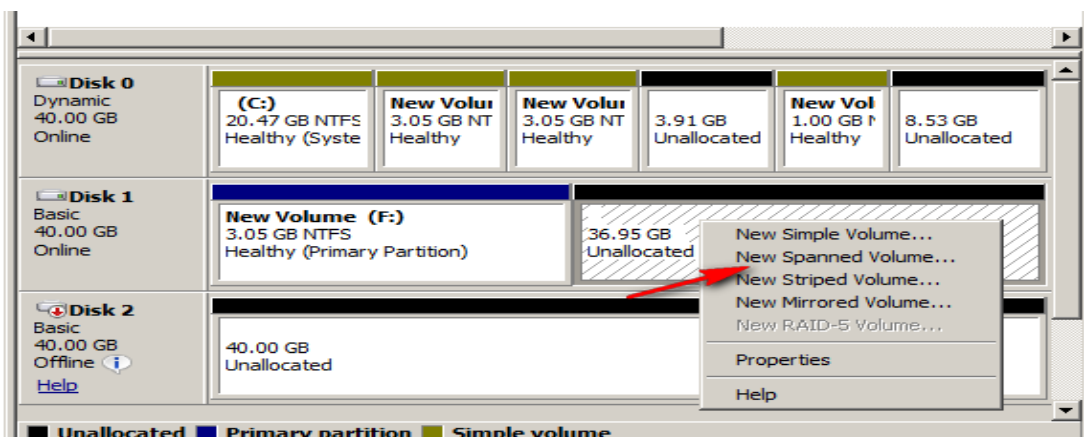
< Back Next > Cancel

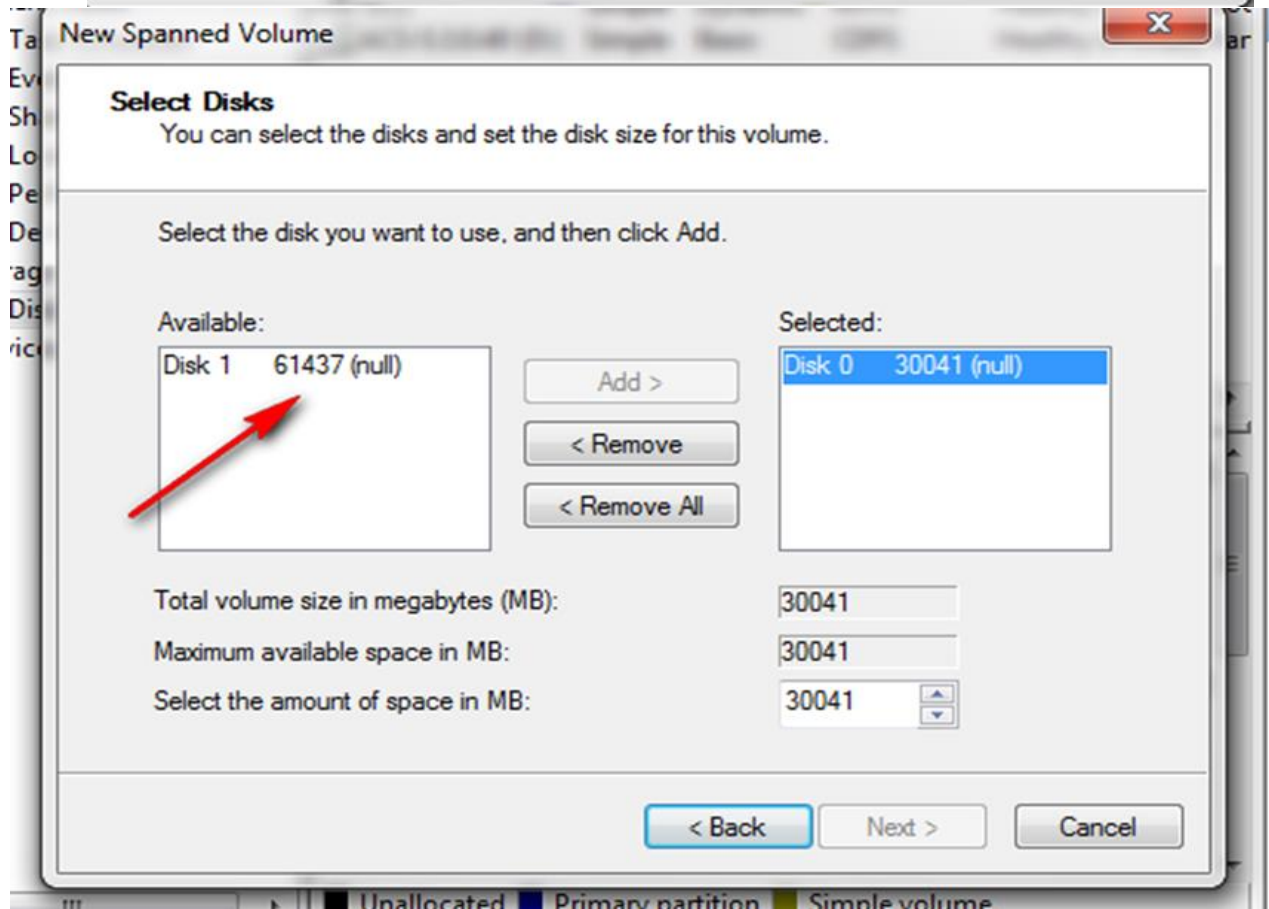
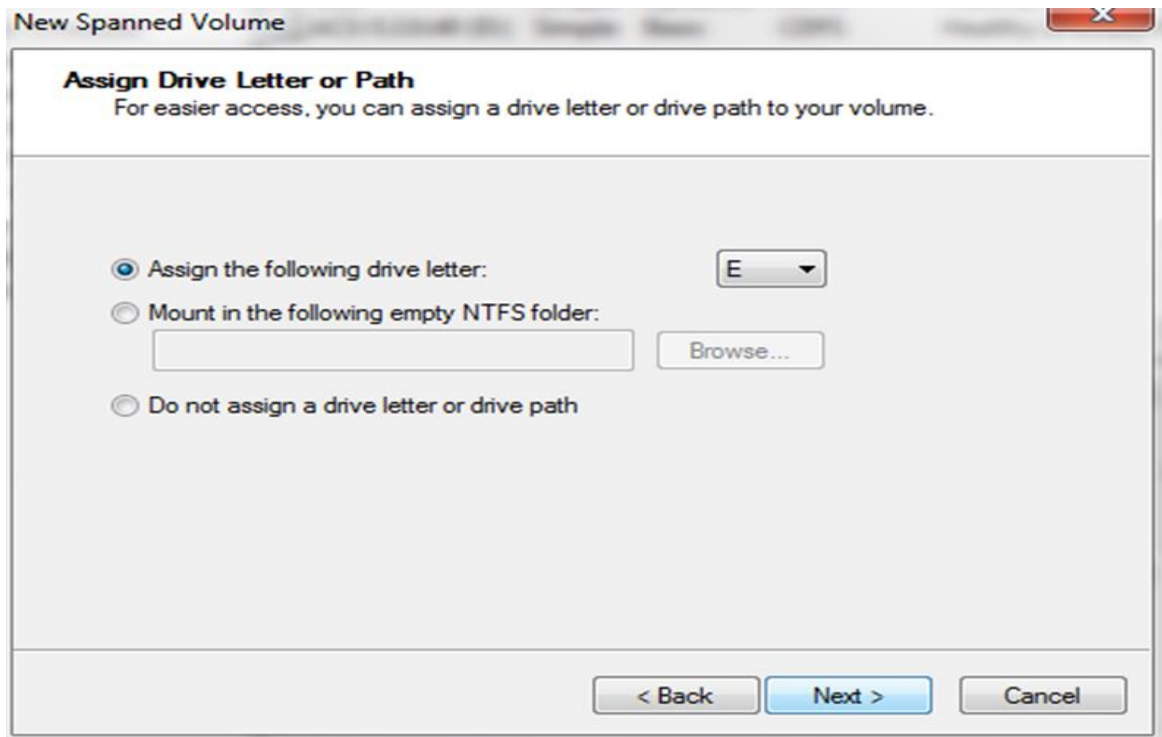


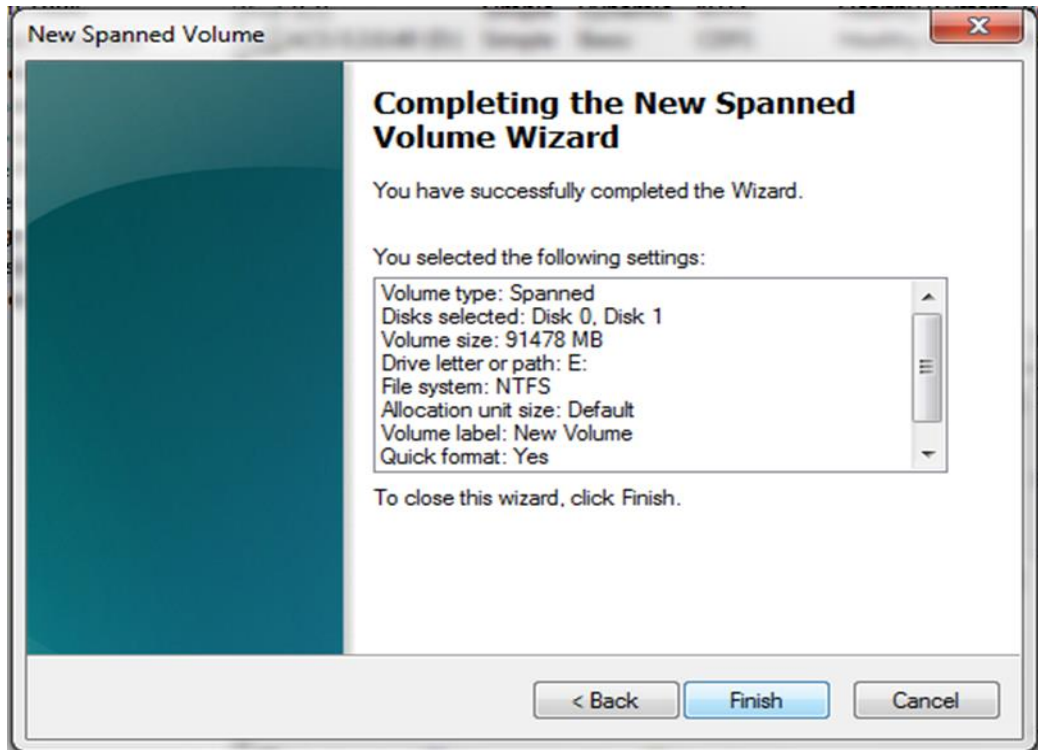
7.1.4- Spanned Volume

Create new spanned volume in windows server 2008R2

لكي يتم انشاء Spanned Volume يجب ان يكون لدينا اكثر من قرص صلب حيث يتم اخذ مساحة فارغة من كل قرص ليتم تجميعها في قرص واحد ويتم تخزين البيانات علي القرص الفارغ الاول وبعدها يتم تخزين علي القرص الثاني وبنفس الطريقة اذا كان لدينا اكثر من قرصين, حيث تكون سرعة الوصول الي البيانات بسرعة قرص واحد.



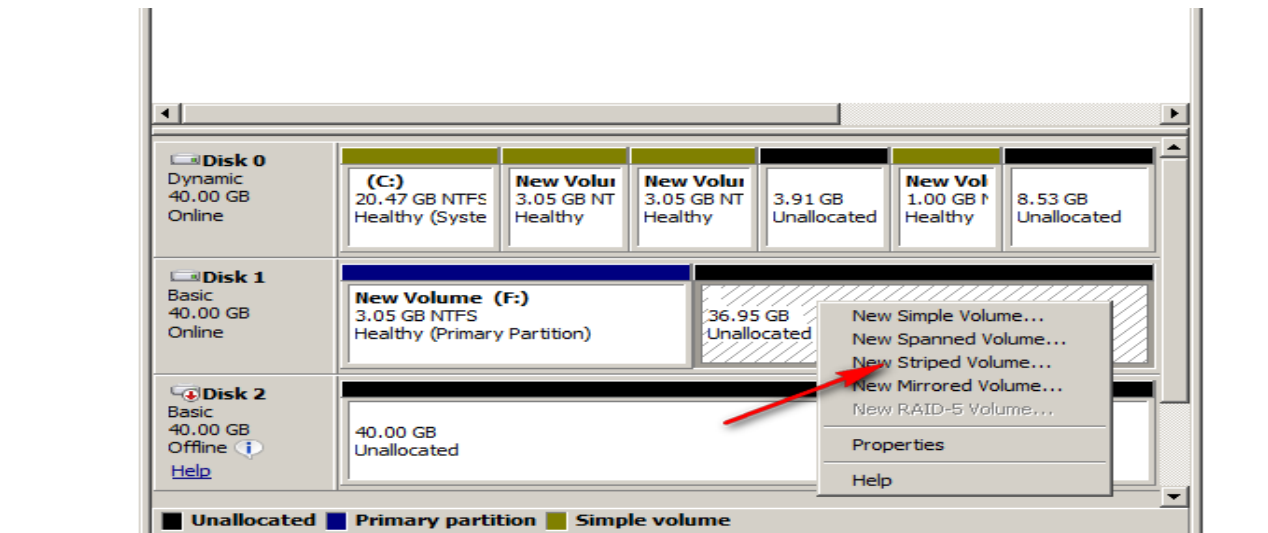


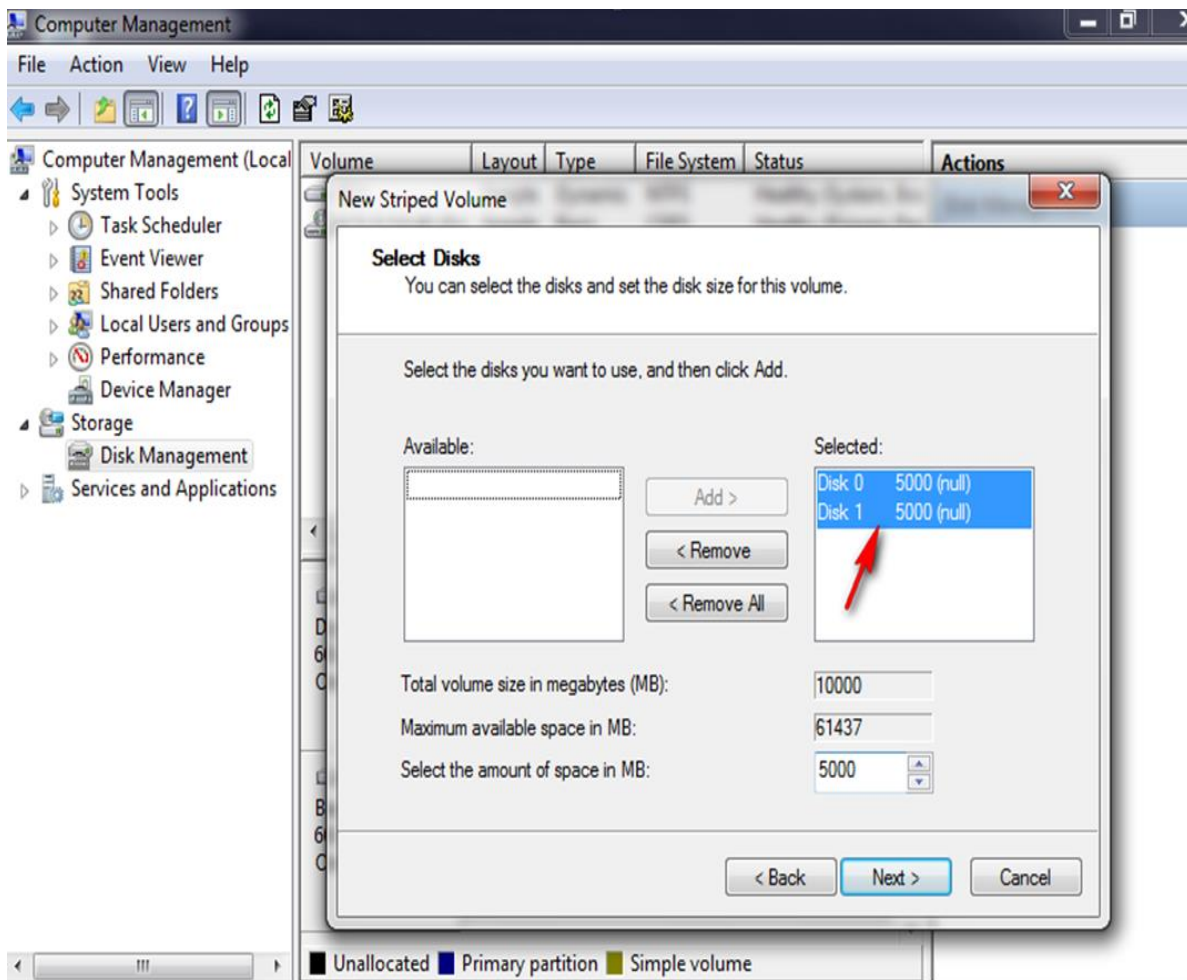
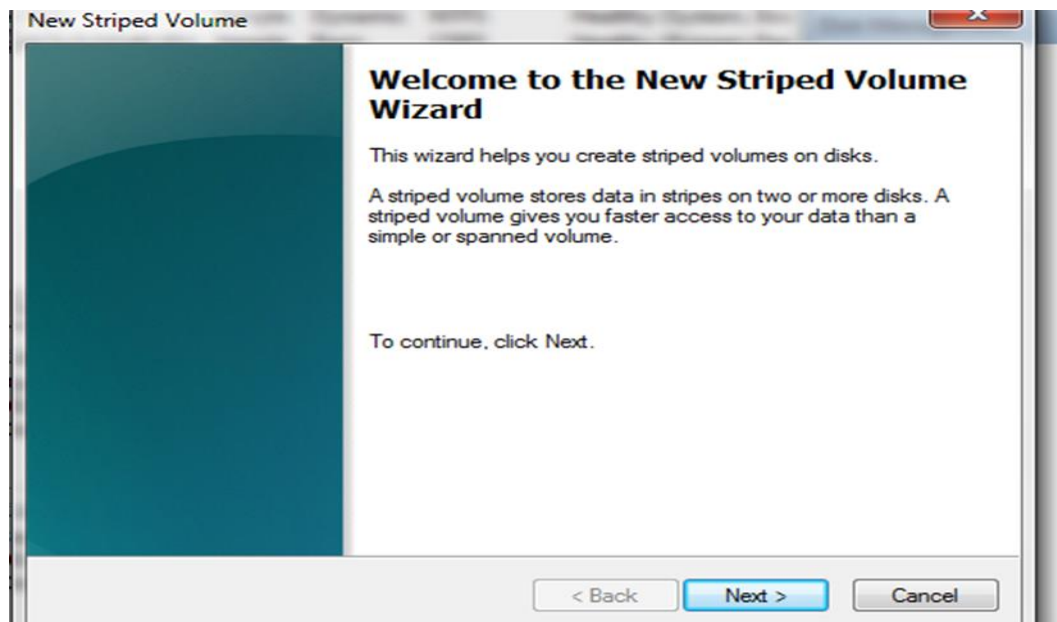


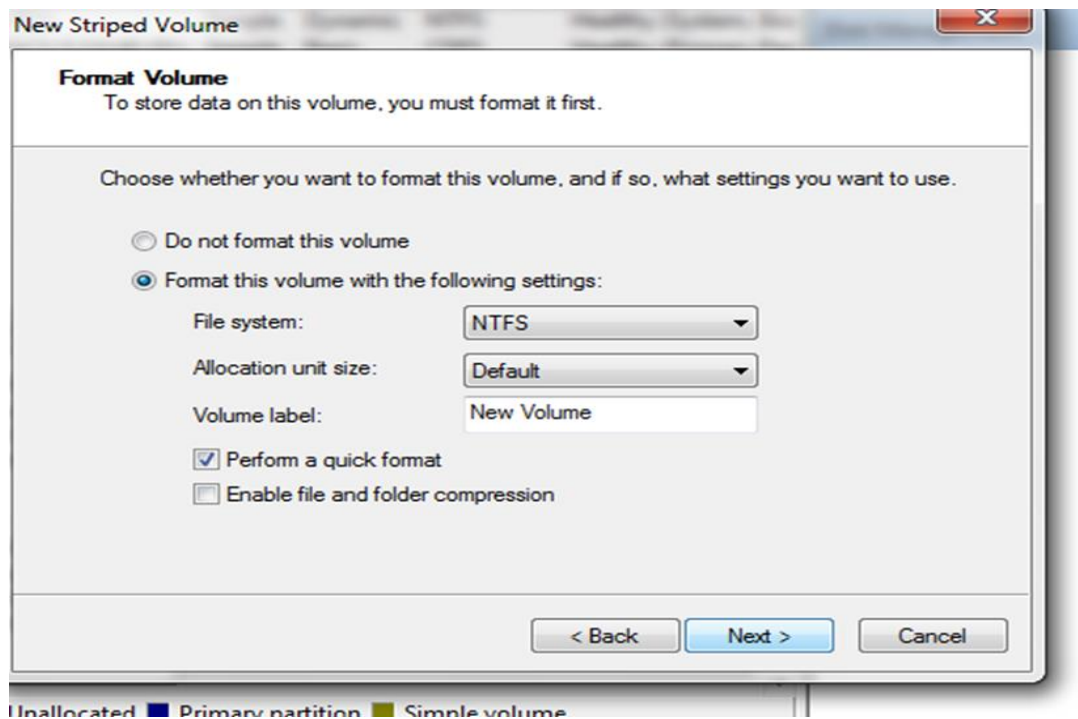
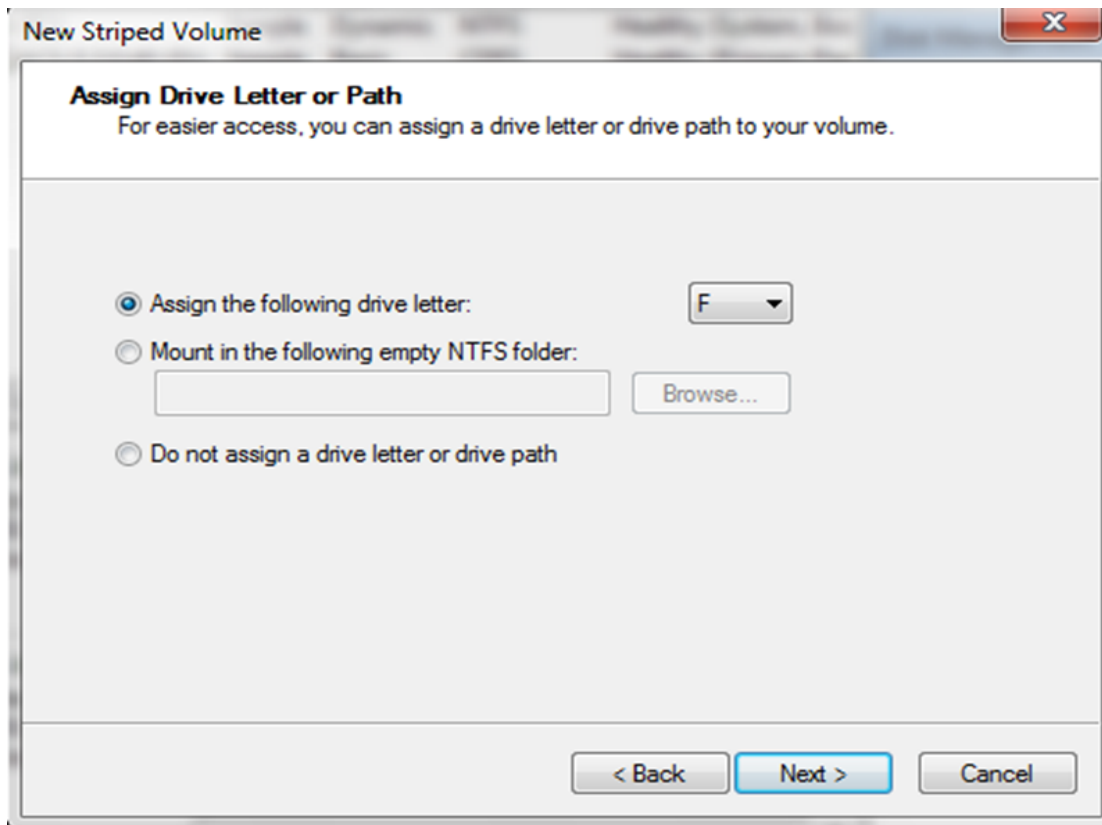
7.1.5- Striped Volume

Create new striped volume in windows server 2008R2

لكي يتم انشاء Striped Volume يجب ان يكون لدينا اكثر من قرص صلب حيث يتم اخذ مساحة فارغة من كل قرص ليتم تجميعها في قرص واحد ويتم تخزين البيانات علي الاقراص بتساوي في نفس الوقت, حيث يمتاز بسرعة الوصول الي المعلومة بسبب قراته للبيانات من الاقراص جميعا في نفس الوقت.





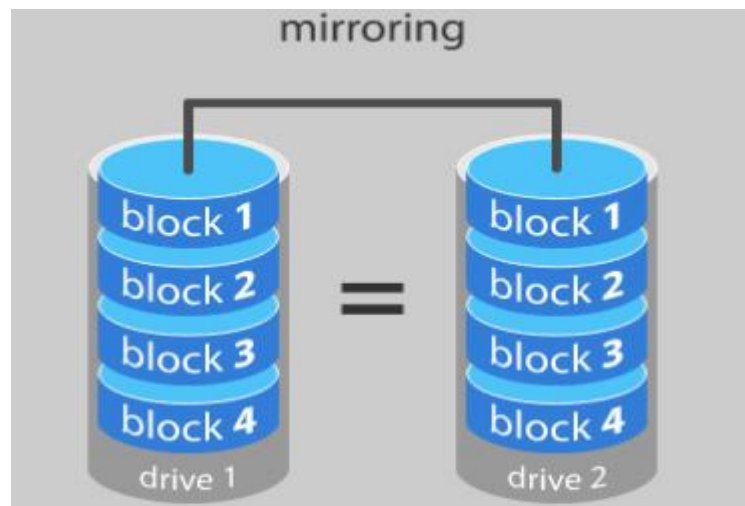


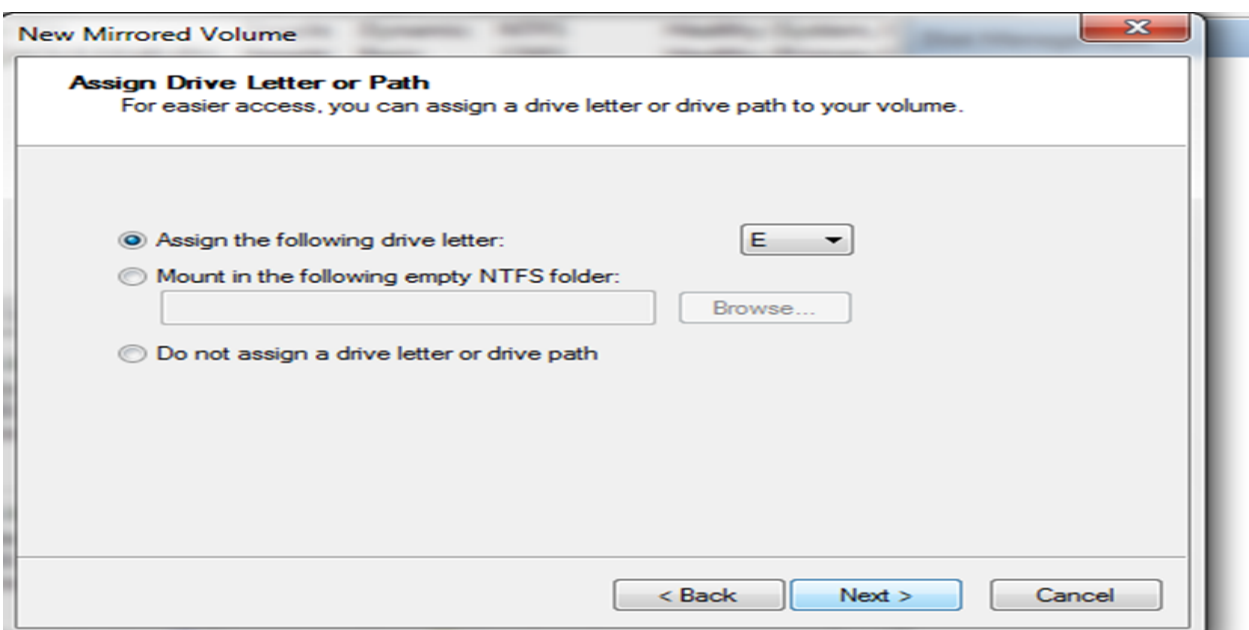
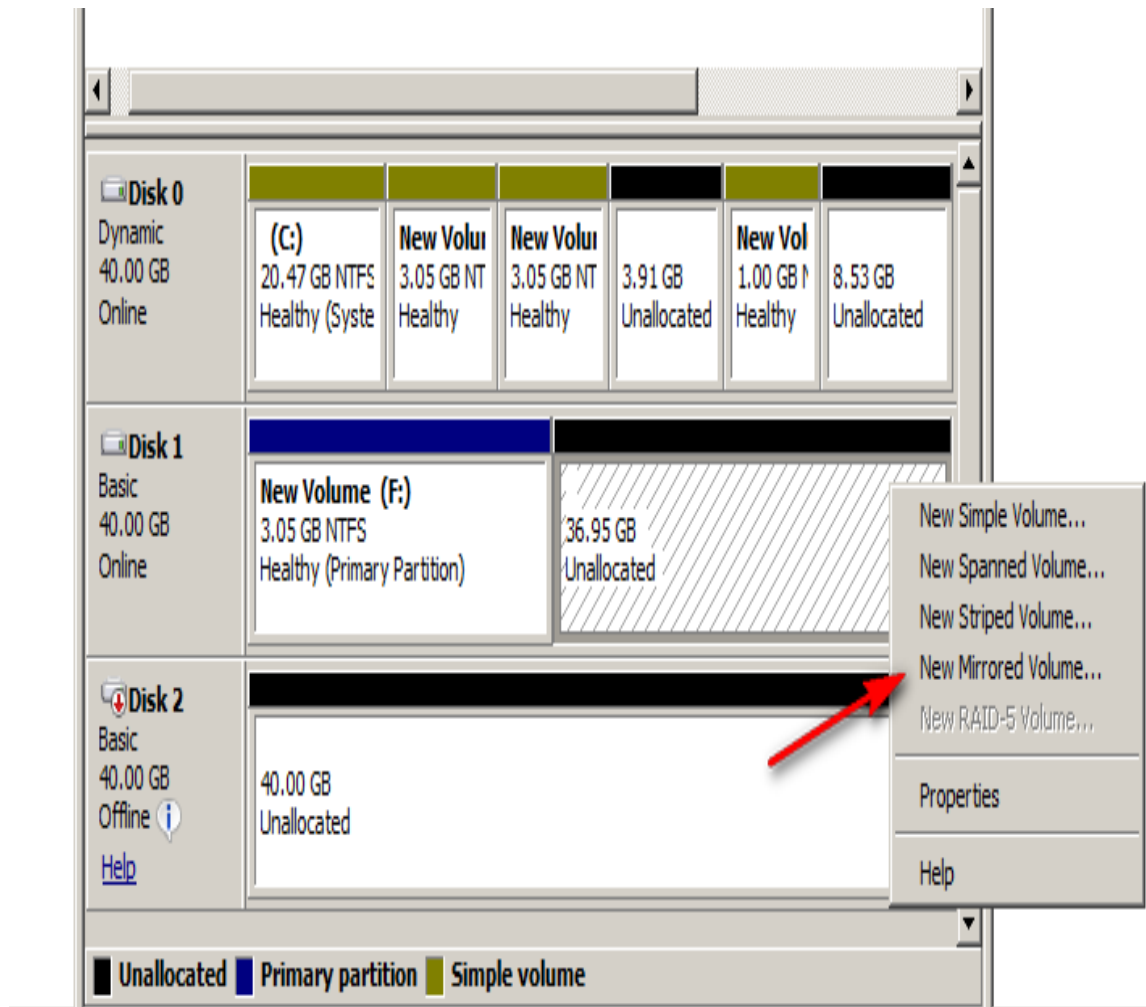


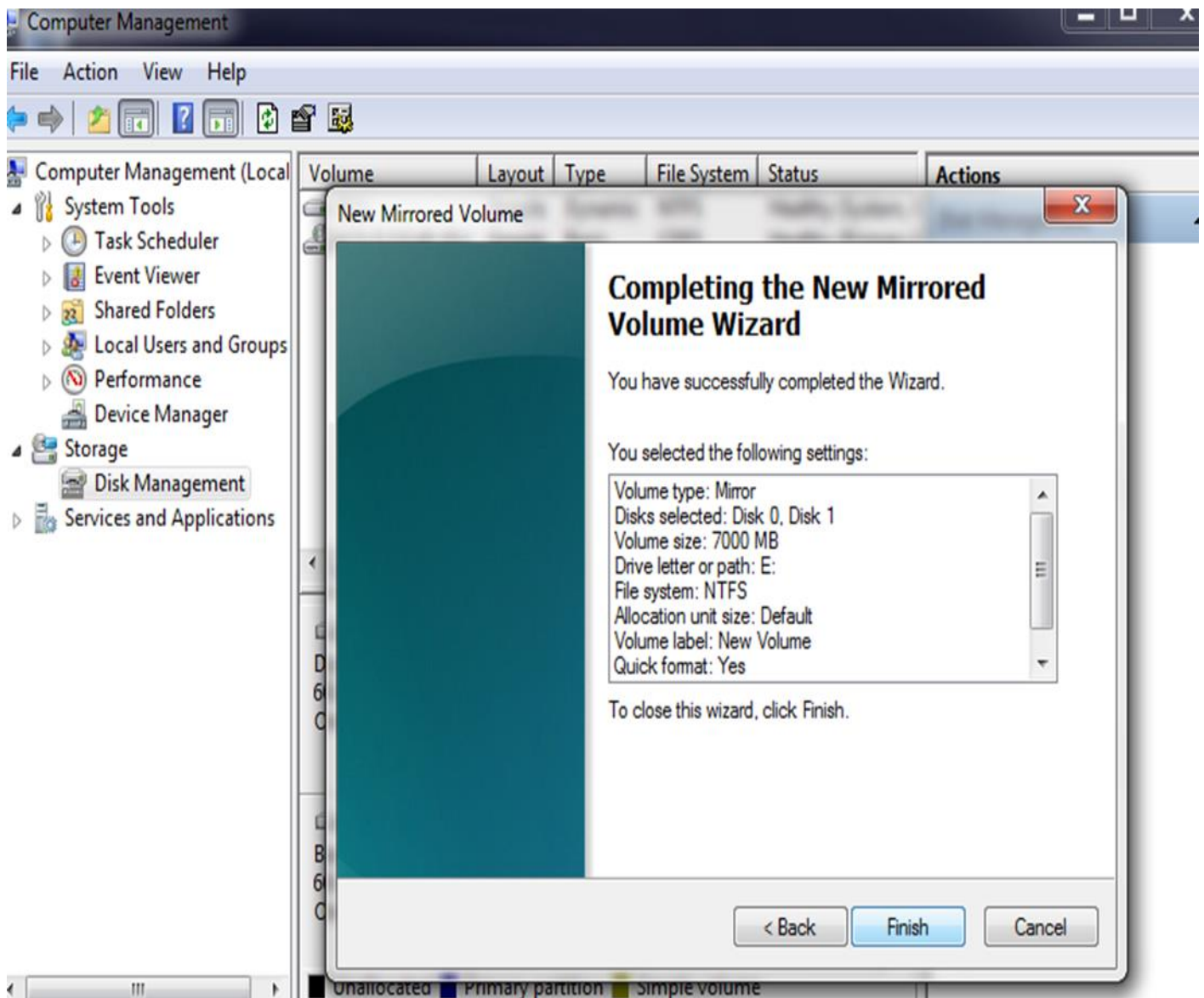
7.1.6- Mirrored Volume

Create new mirrored volume in window server 2008

لكي يتم انشاء Mirrored Volume يجب ان يكون لدينا اكثر من قرص صلب حيث يتم اخذ مساحة فارغة من كل قرص ليتم تجميعها في قرص واحد ويتم تخزين البيانات علي الاقراص بتساوي في نفس الوقت, حيث يمتاز بسرعة الوصول الي المعلومة بسبب قراته للبيانات من الاقراص جميعا في نفس الوقت.





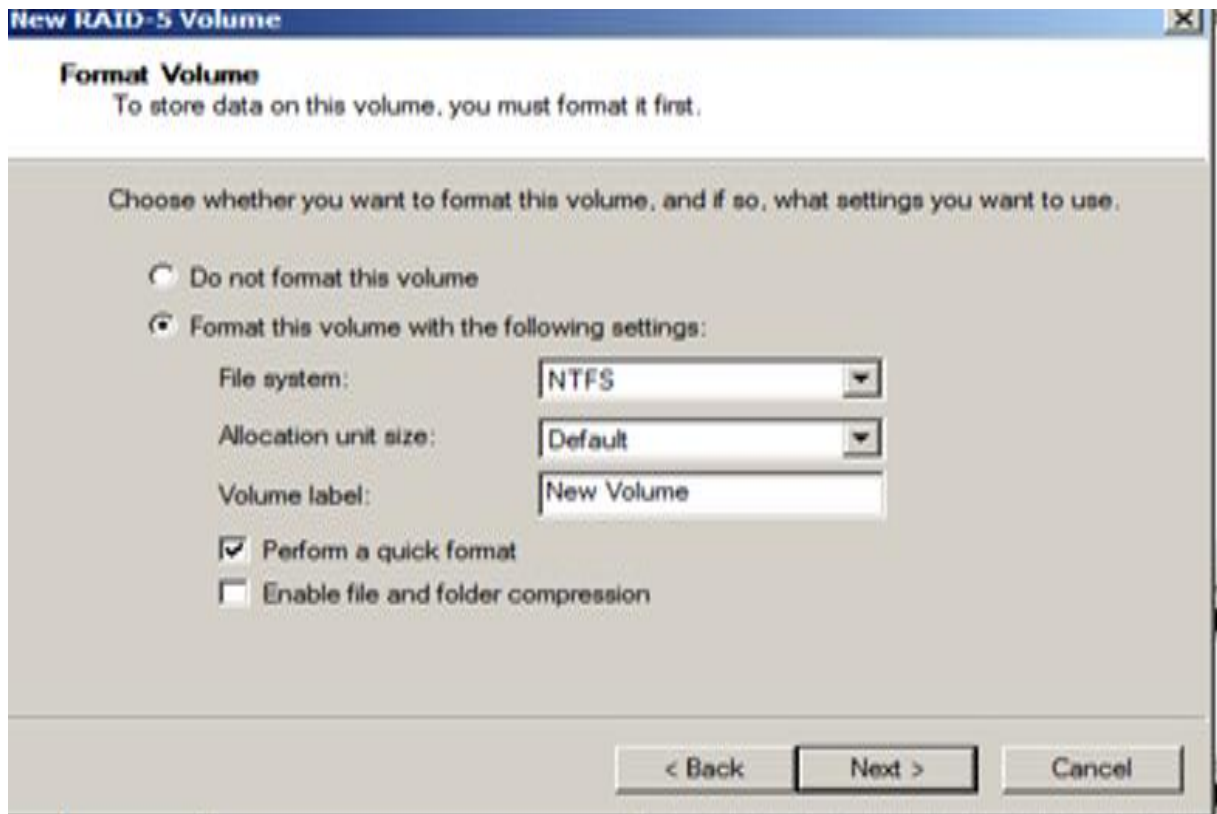
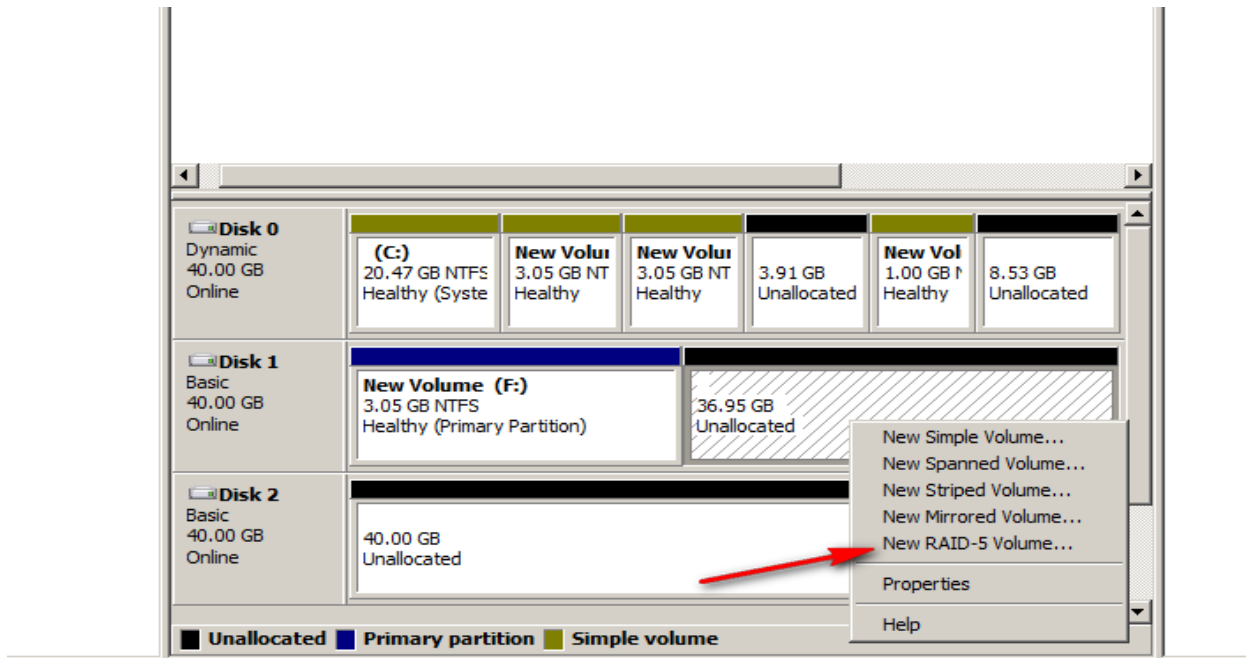


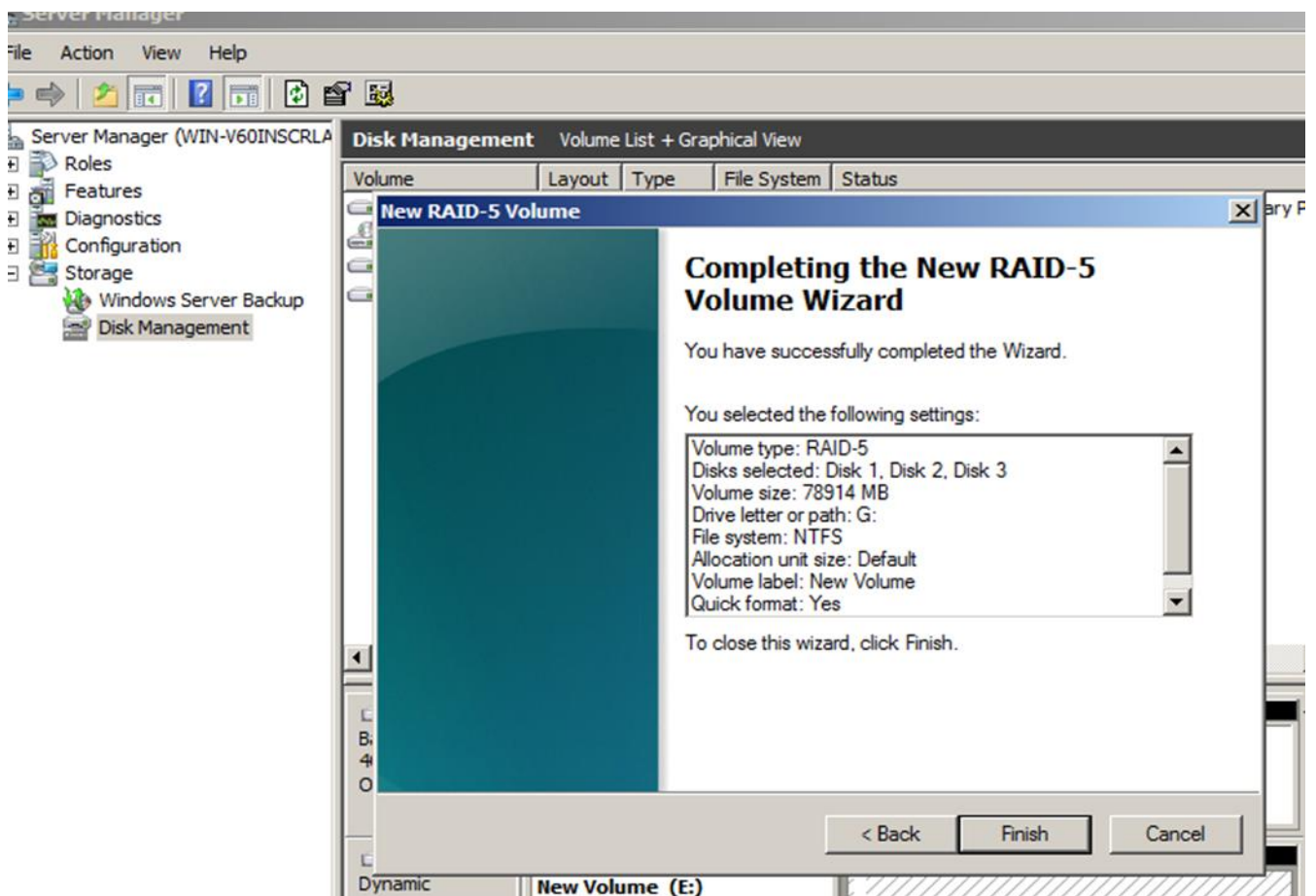
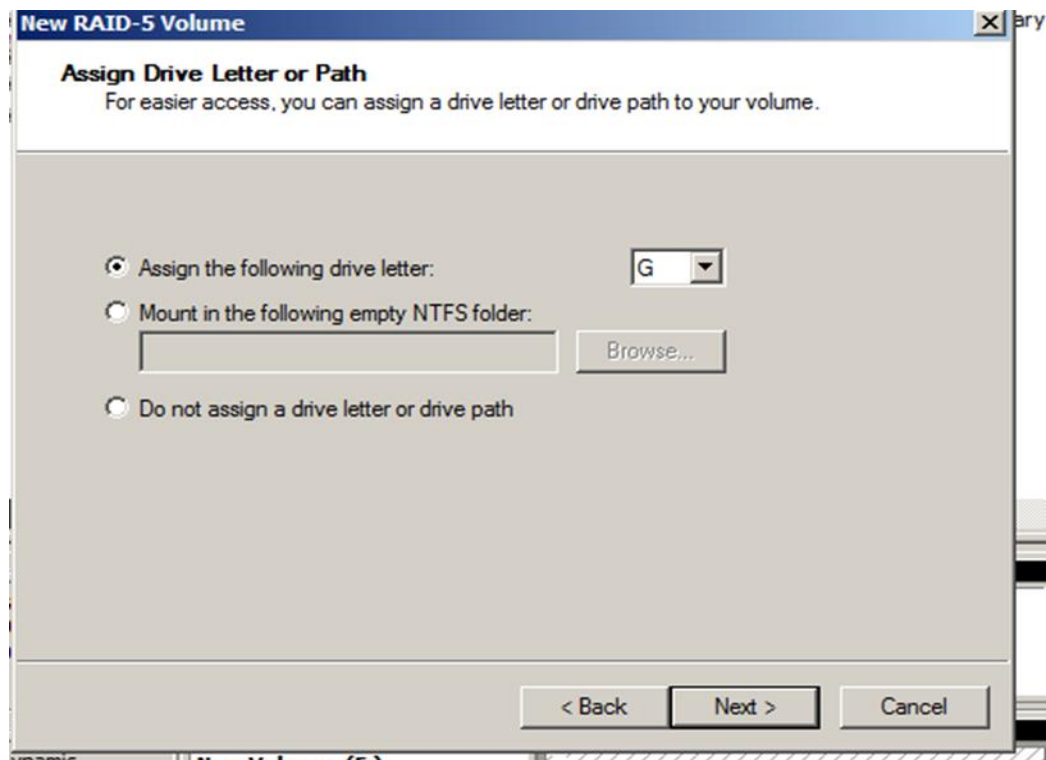
7.1.7- RAID 5 Volume

لكي يتم انشاء RAID Volume يجب ان يكون لدينا 3 أقراص صلبة حيث يتم اخذ مساحة فارغة من كل قرص ليتم تجميعها في قرص واحد ويتم تخزين البيانات علي الاقراص بتساوي في نفس الوقت، حيث يمتاز بسرعة الوصول الي المعلومة بسبب قرائته للبيانات من الاقراص جميعا في نفس الوقت.

Create new RAID 5 volume in windows server 2008

You must have 3 Disks to do RAID 5 volume





7.2- Disk management in window server 2012R2

ادارة الاقراص في نظام تشغيل window server 2012

Windows server 2012 Extend and shrank Volume

How to resize partition on Windows Server 2012 (R2)

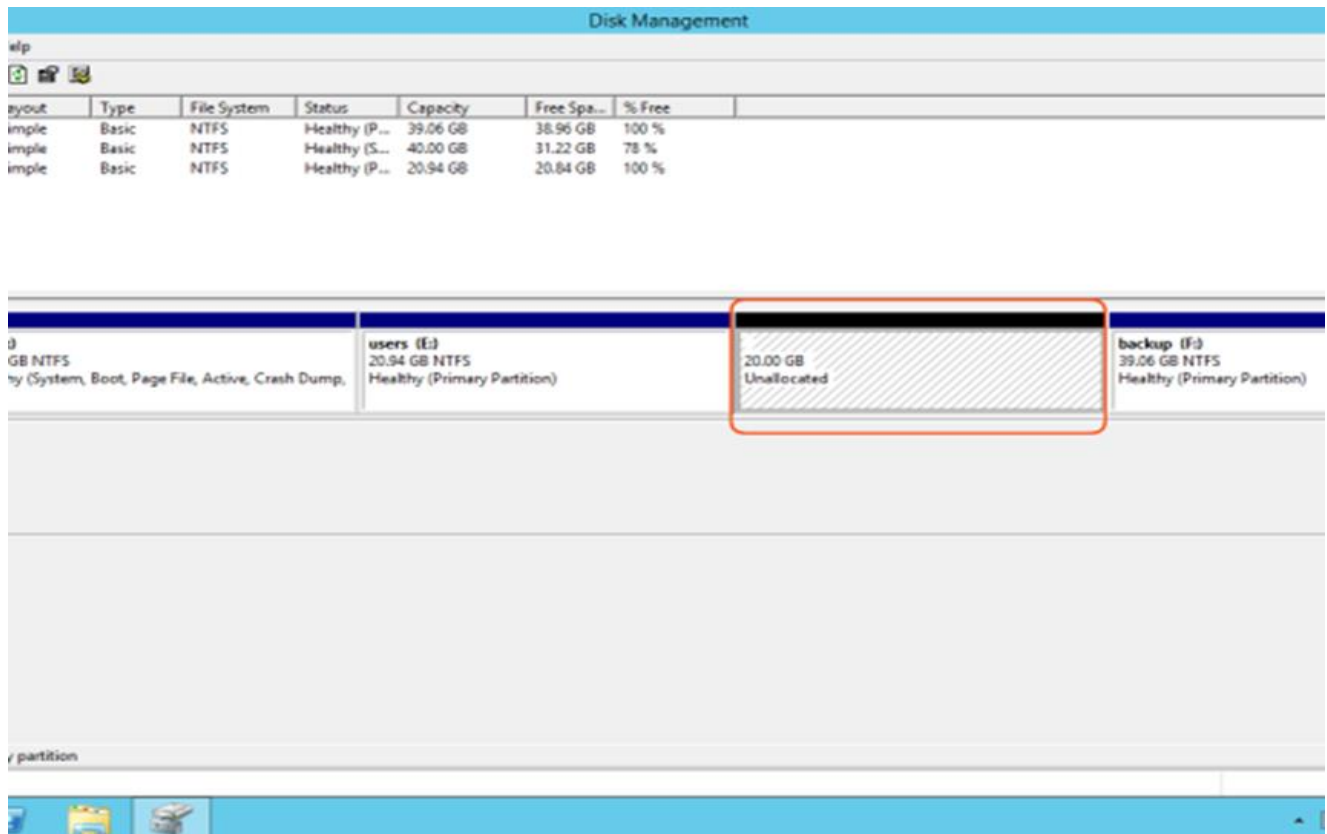
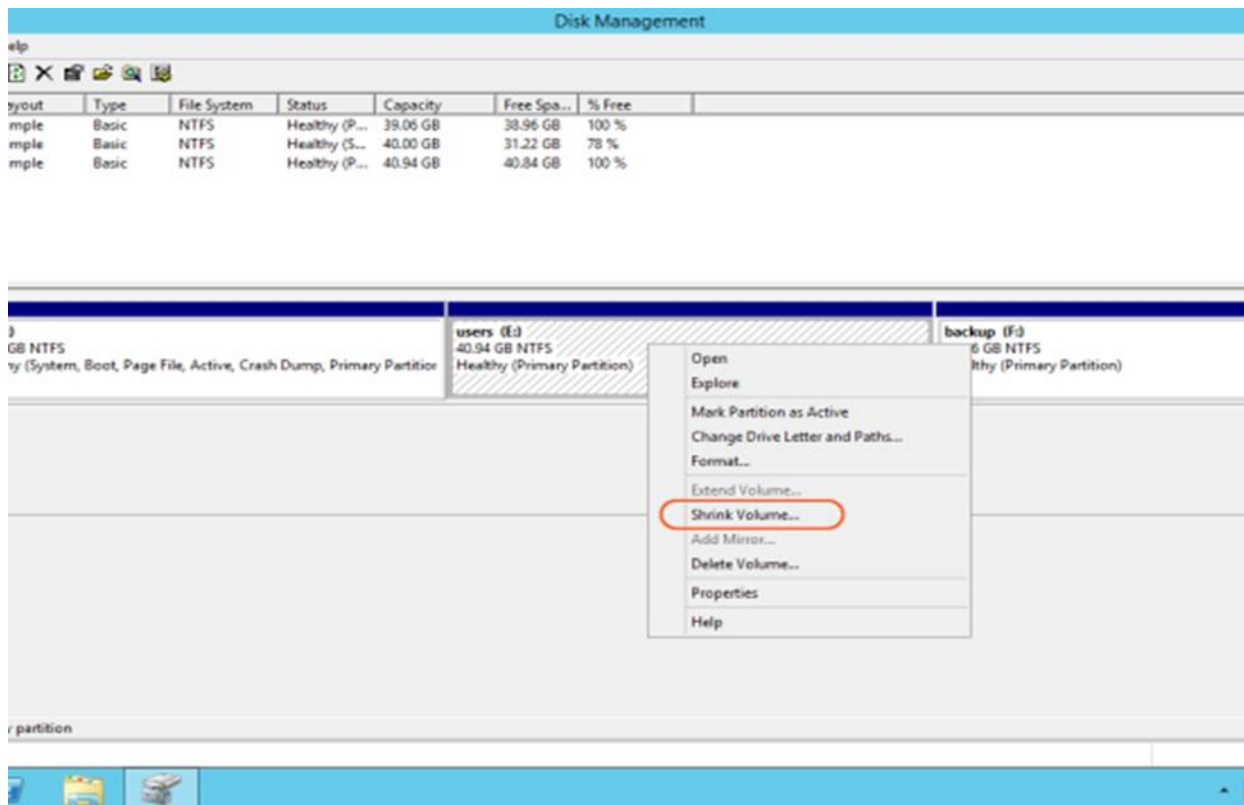
In September 4, 2012 Microsoft released Windows Server 2012, added new features and improved performance. However, no improvement for Disk Management. Windows Server 2012 (R2) Disk Management console can do some basic partitioning jobs and part of advanced operations, such as Extend Volume and Shrink Volume, both features can be used to re-size a created partition. However, due to some limitations, to resize partition in Windows Server 2012, you still need 3rd-party server partition software.

7.2.1- Shrink Volume in window server 2012R2

تقليص المساحة التخزينية للقرص داخل Windows server 2012

Re-size partition by Shrink Volume

Right-click the Windows icon on bottom left corner and select “Disk Management”, and then you’ll see all disks and partitions, capacity and free space of a single partition as well as other information. To change a created partition size, right click it and select “Shrink Volume”



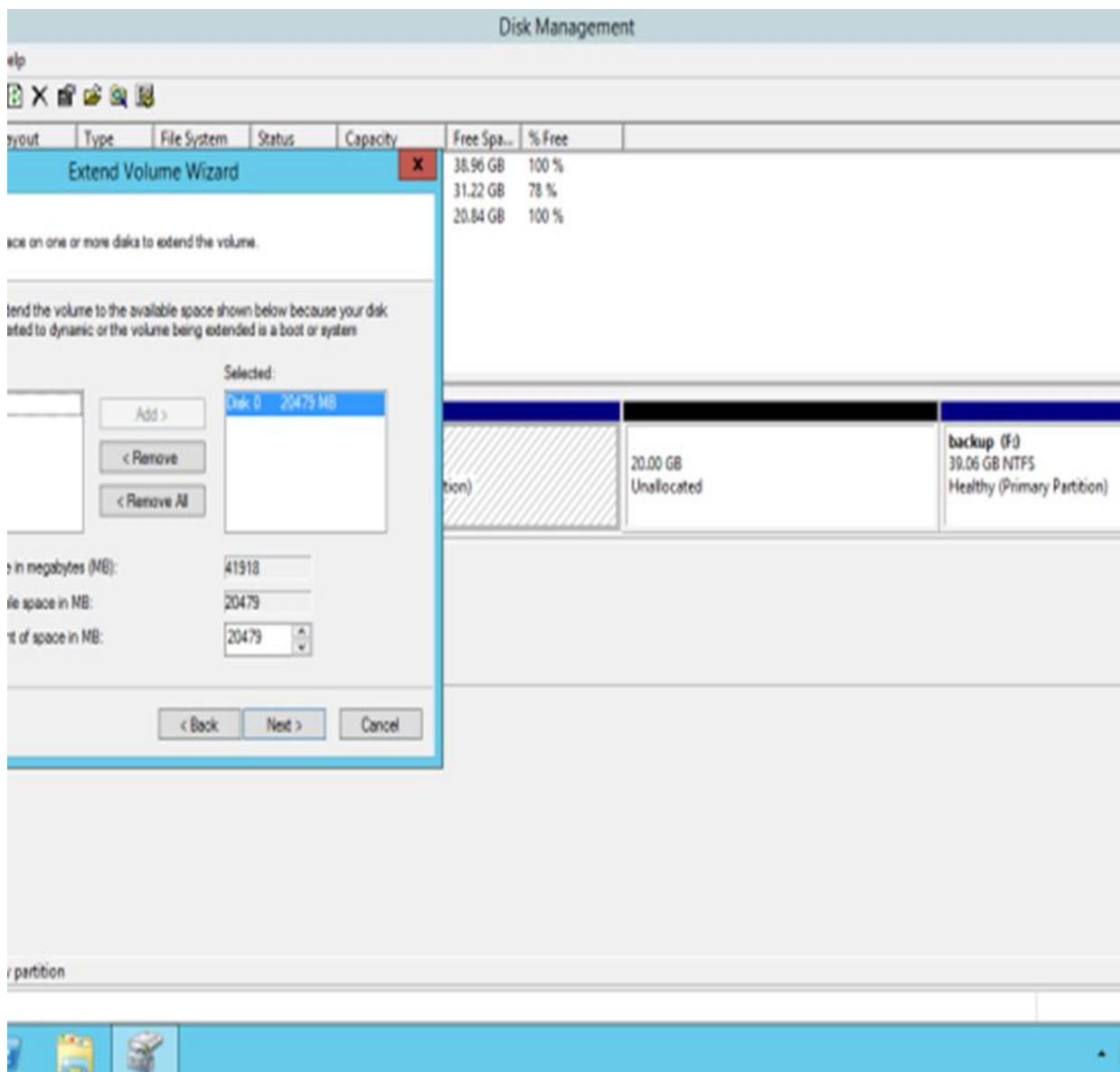
7.2.2- Extend Volume

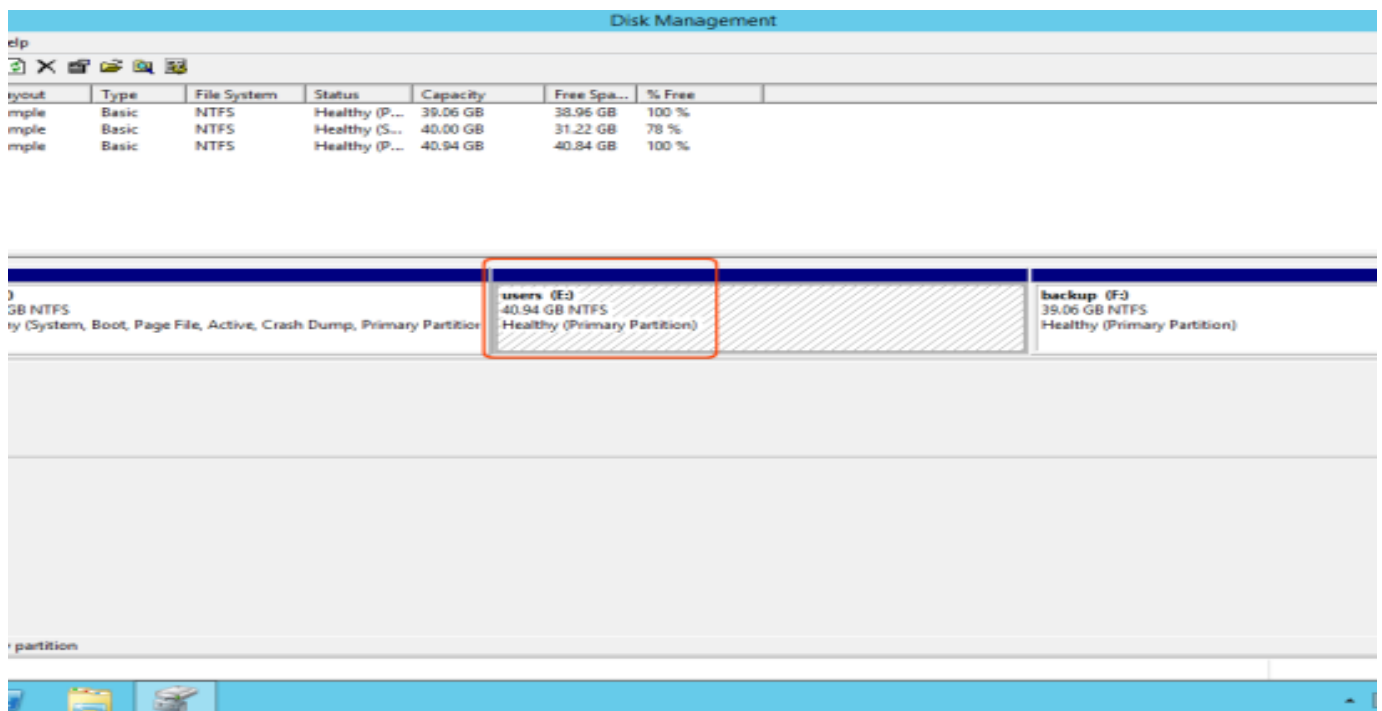
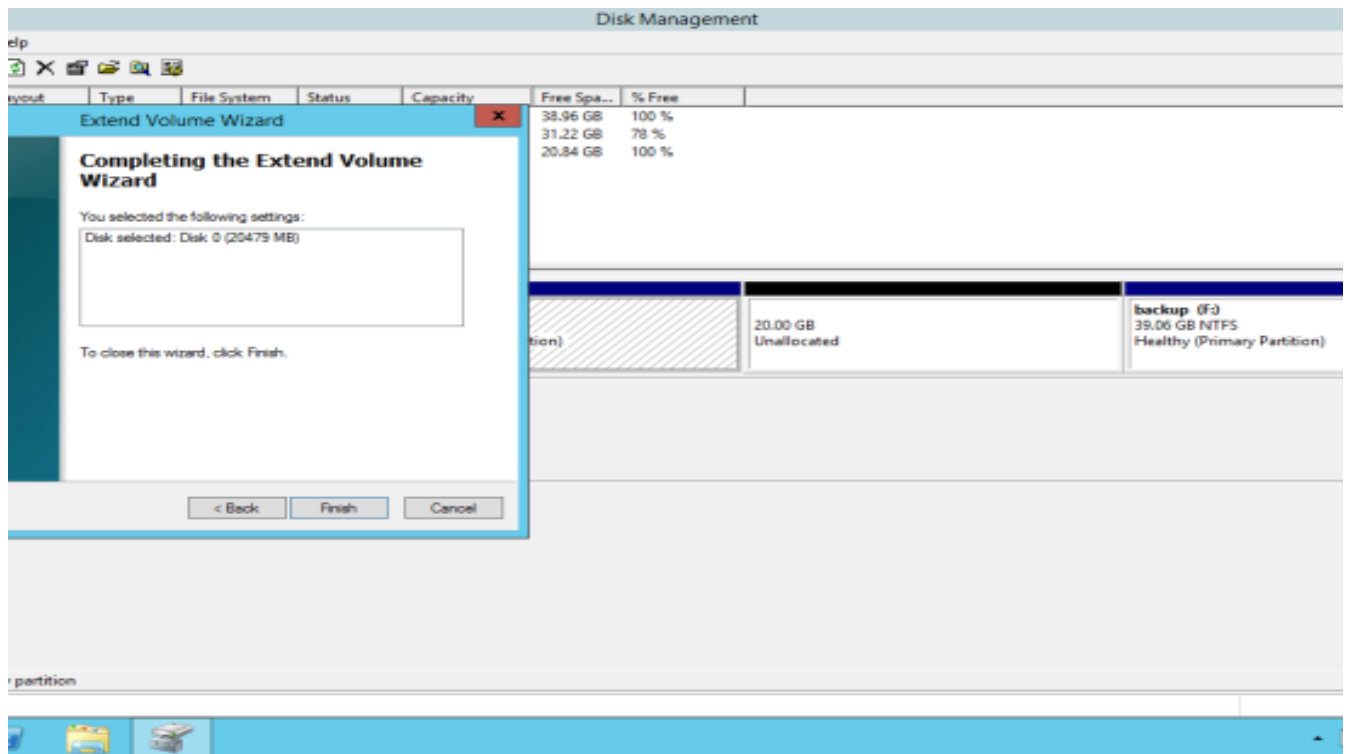
زيادة مساحة القرص الصلب Windows Server 2012

Resize partition with Extend Volume

In Windows Server 2012 Disk Management console, you can extend a disk drive, but not every drive can be extended.

Let's right click a data partition, as you see Extend Volume is greyed out



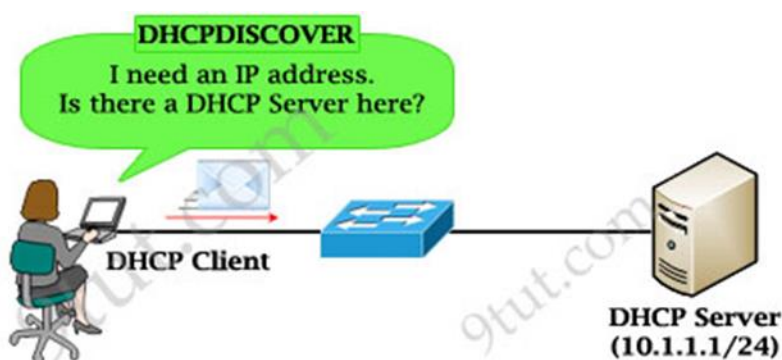


8- DHCP server

وهو عبارة عن بروتوكول يعمل في الطبقة السابعة يقوم بإعطاء IP, subnet mask, والبوابة الافتراضية و DNS الخ... بشكل تلقائي لجميع الأجهزة داخل الشبكة.

The Dynamic Host Configuration Protocol (DHCP)

a DHCP server dynamically assigns an IP address to hosts (computer, printer, mobile ..ETC) other network configuration parameters to each device on a network so they can communicate with other IP networks.



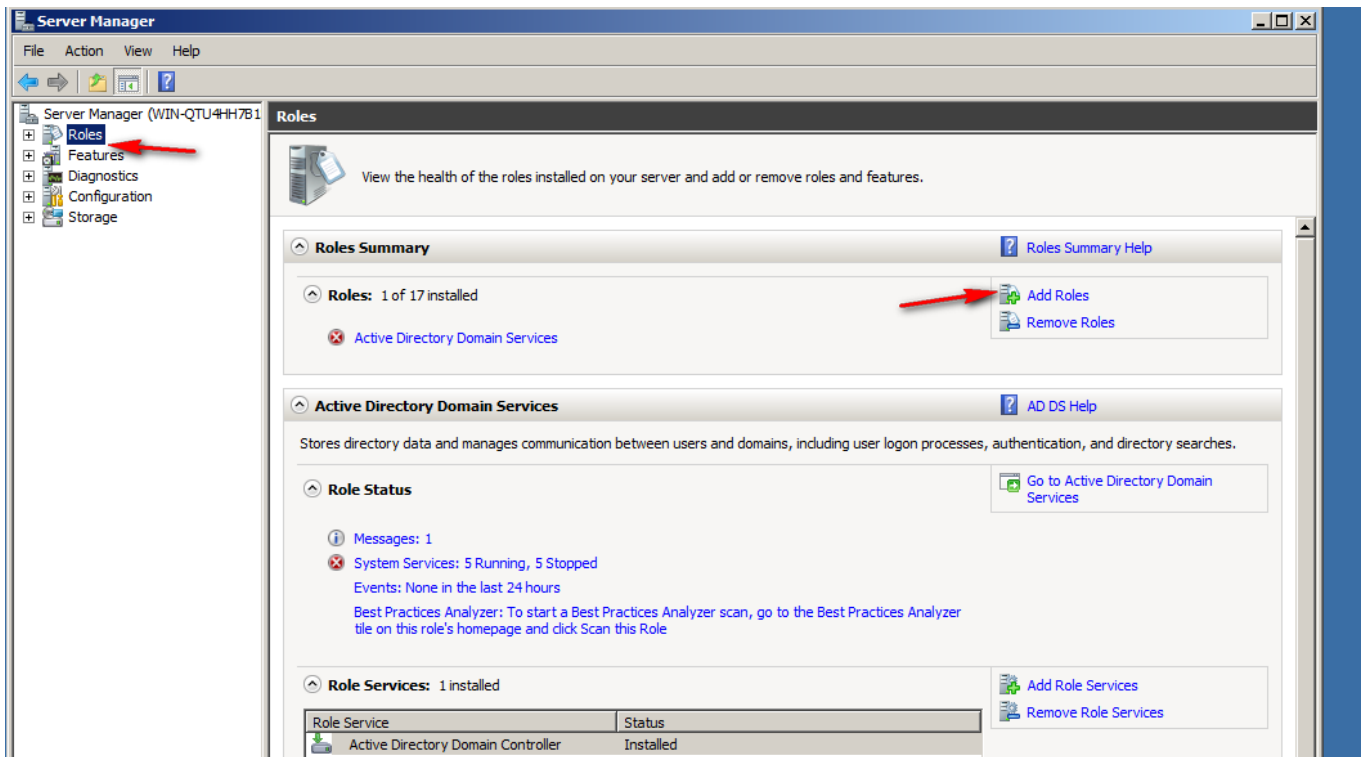
8.1- DHCP server in windows server 2008

تفعيل DHCP داخل windows server 2008

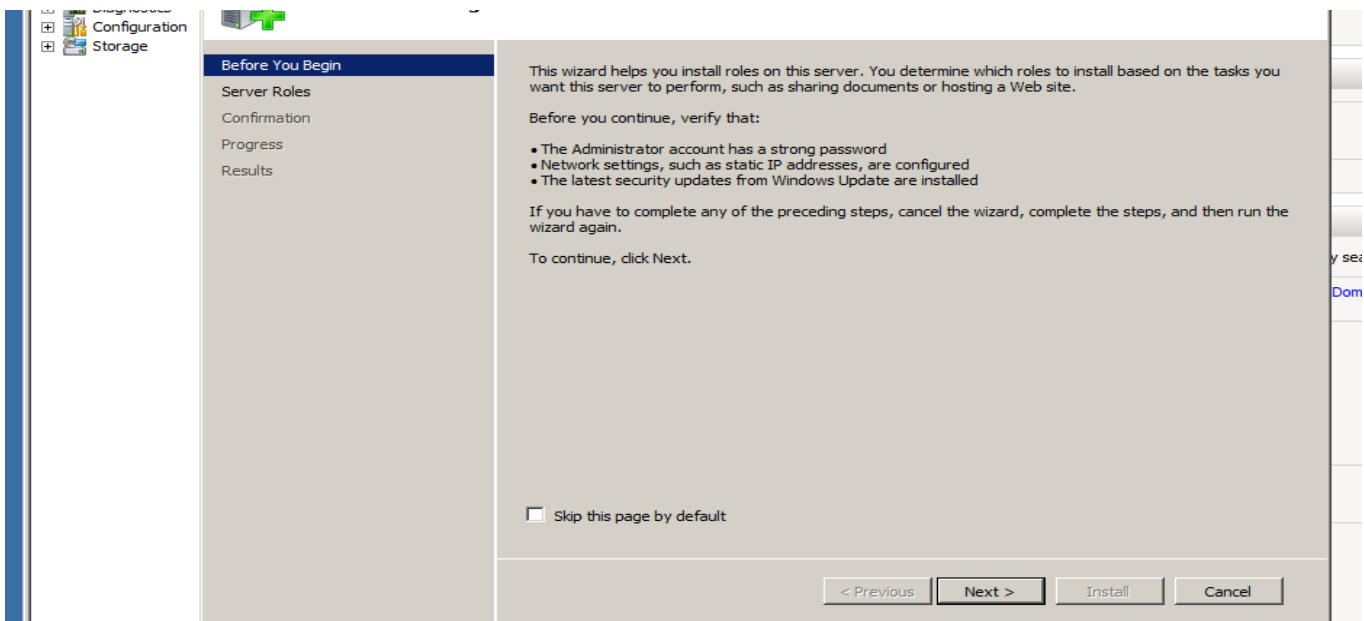
Install Dynamic host configuration protocols DHCP on windows server 2008 r2



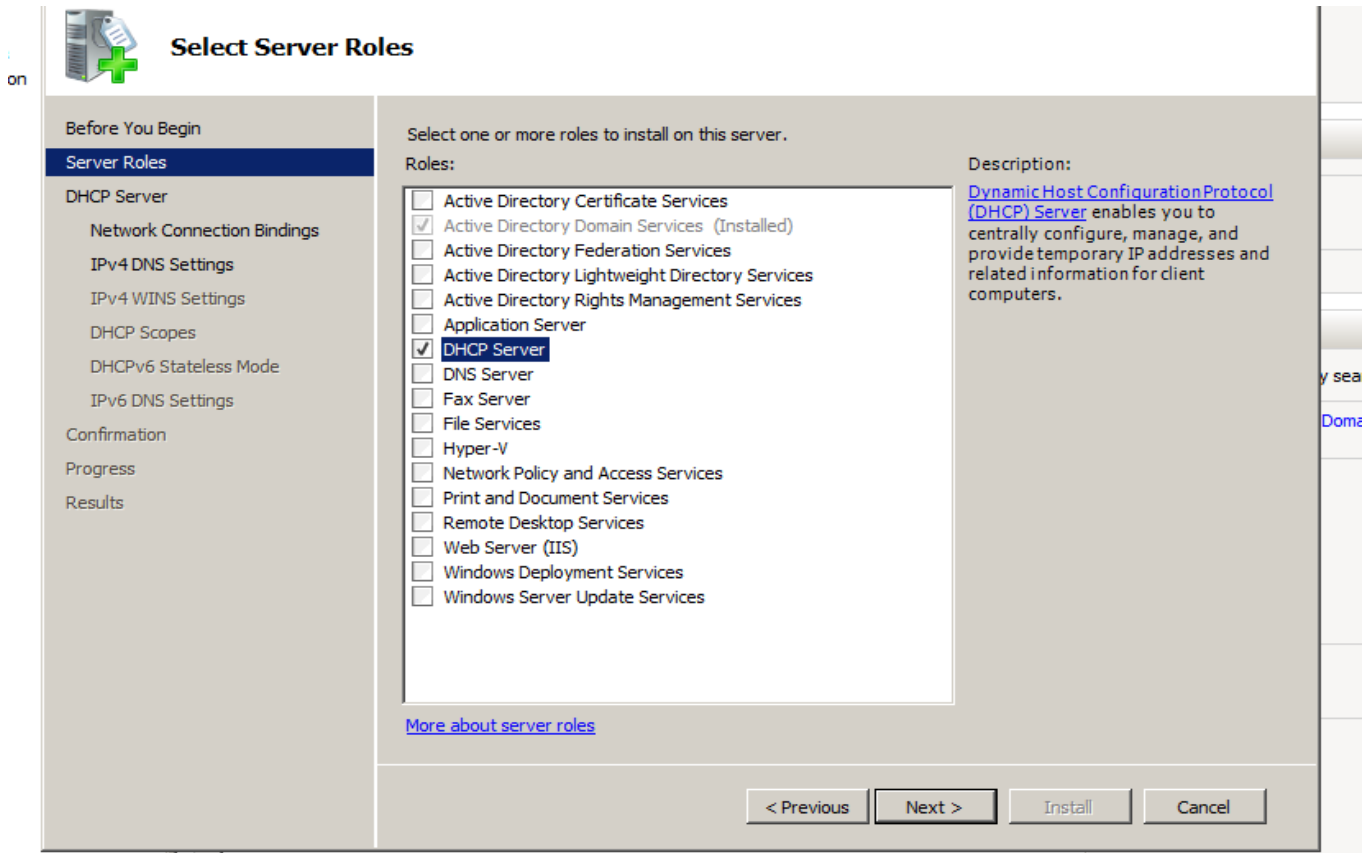
Add DHCP role



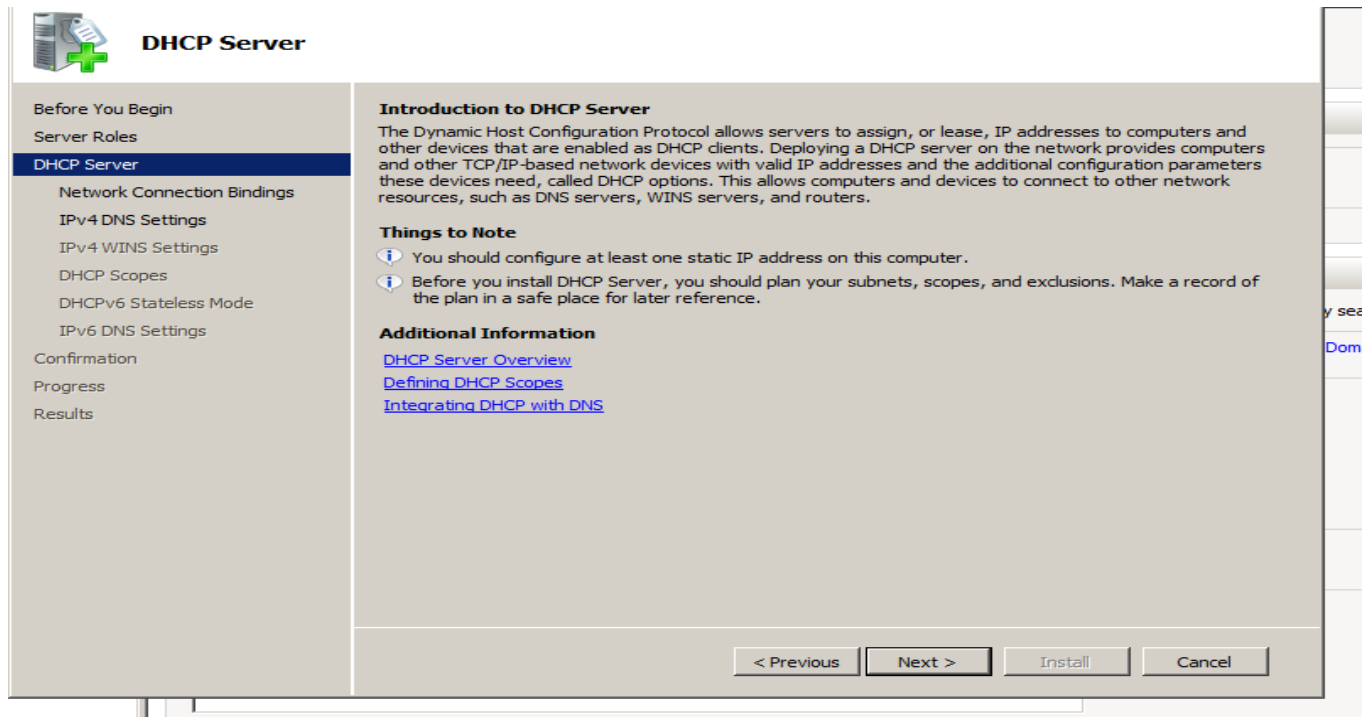
Add DHCP role



Select DHCP role



DHCP server



Select network connection bindings

Select Network Connection Bindings

Before You Begin
Server Roles
DHCP Server
Network Connection Bindings
IPv4 DNS Settings
IPv4 WINS Settings
DHCP Scopes
DHCPv6 Stateless Mode
IPv6 DNS Settings
Confirmation
Progress
Results

One or more network connections having a static IP address were detected. Each network connection can be used to service DHCP clients on a separate subnet.
Select the network connections that this DHCP server will use for servicing clients.

Network Connections:

IP Address	Type
<input checked="" type="checkbox"/> 10.0.0.2	IPv4

Details

Name: Local Area Connection
Network Adapter: Local Area Connection
Physical Address: 00-0C-29-0D-A9-E3

< Previous Next > Install Cancel

Select the domain

Specify IPv4 DNS Server Settings

Before You Begin
Server Roles
DHCP Server
Network Connection Bindings
IPv4 DNS Settings
IPv4 WINS Settings
DHCP Scopes
DHCPv6 Stateless Mode
IPv6 DNS Settings
Confirmation
Progress
Results

When clients obtain an IP address from the DHCP server, they can be given DHCP options such as the IP addresses of DNS servers and the parent domain name. The settings you provide here will be applied to clients using IPv4.

Specify the name of the parent domain that clients will use for name resolution. This domain will be used for all scopes you create on this DHCP server.

Parent domain:

Specify the IP addresses of the DNS servers that clients will use for name resolution. These DNS servers will be used for all scopes you create on this DHCP server.

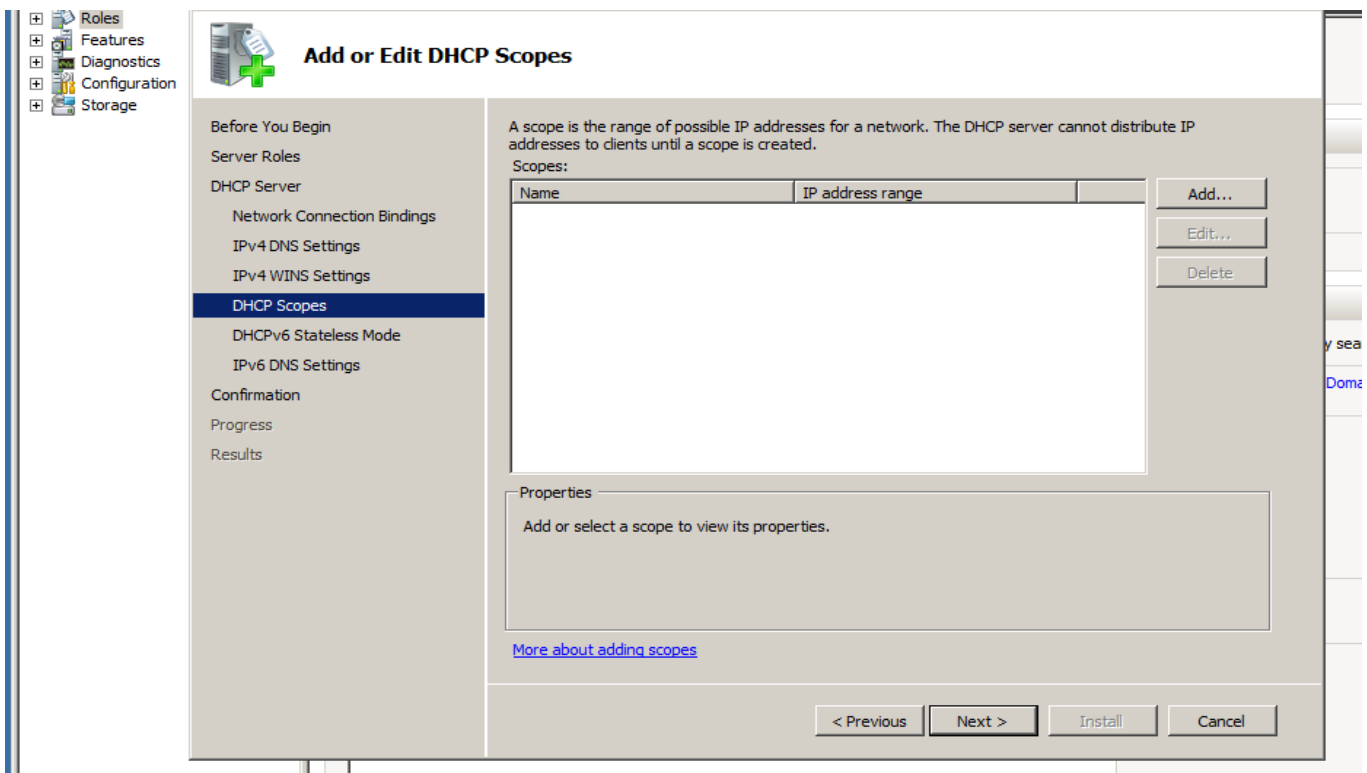
Preferred DNS server IPv4 address:

Alternate DNS server IPv4 address:

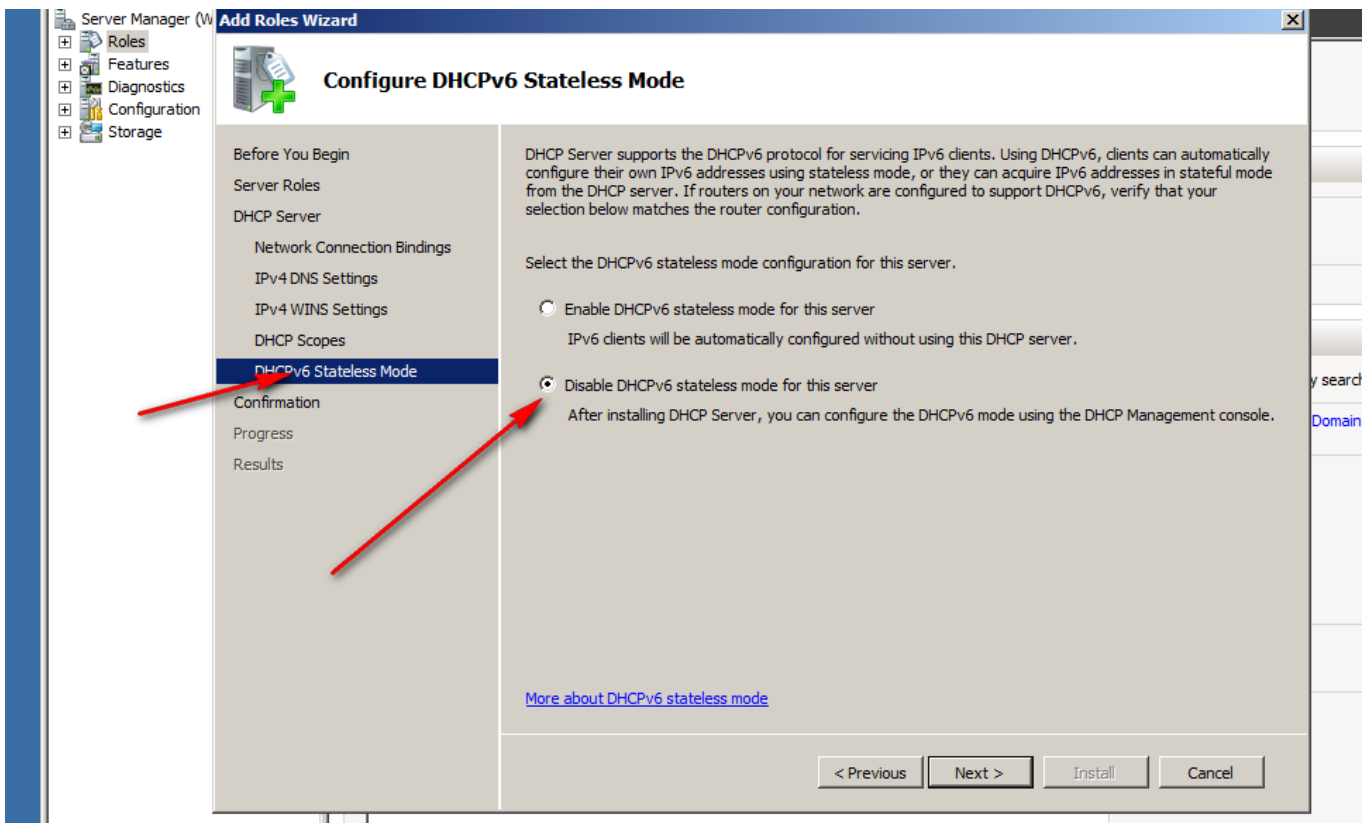
[More about DNS server settings](#)

< Previous Next > Install Cancel

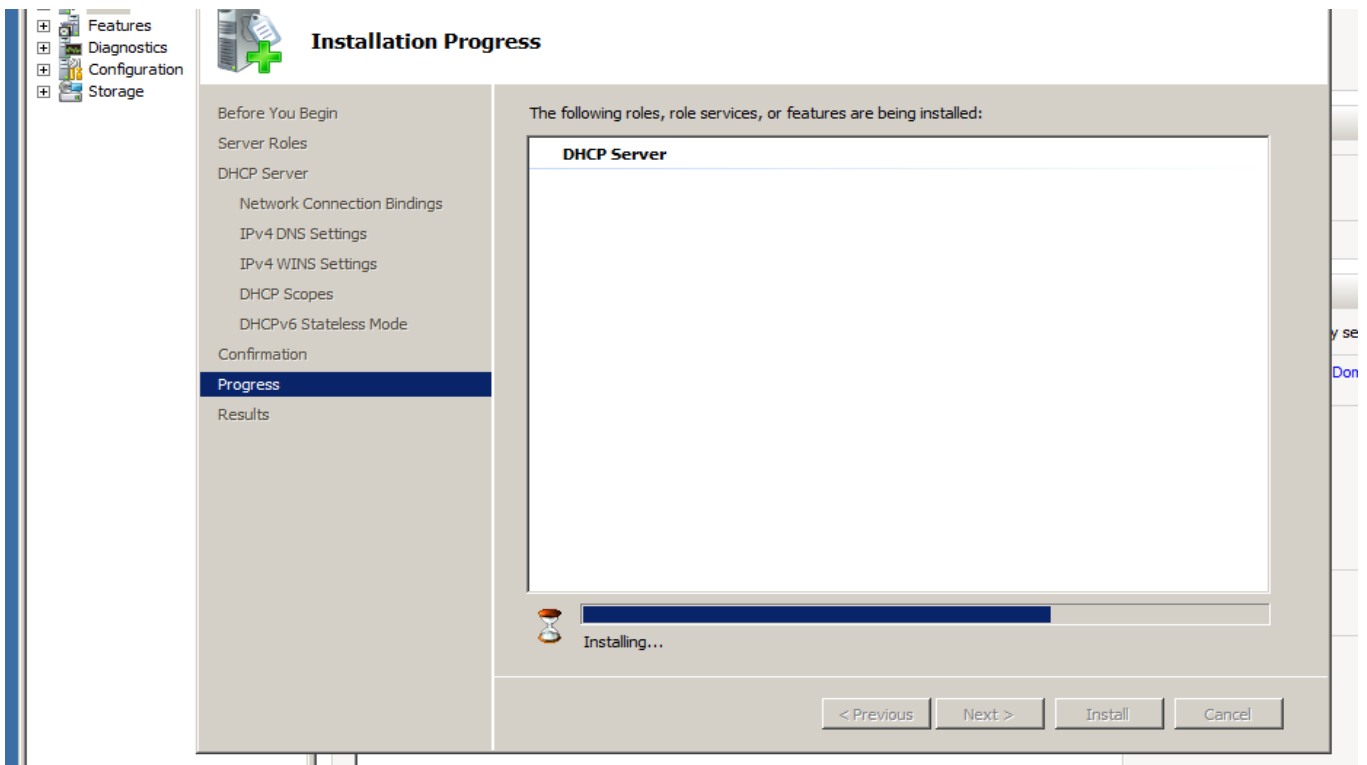
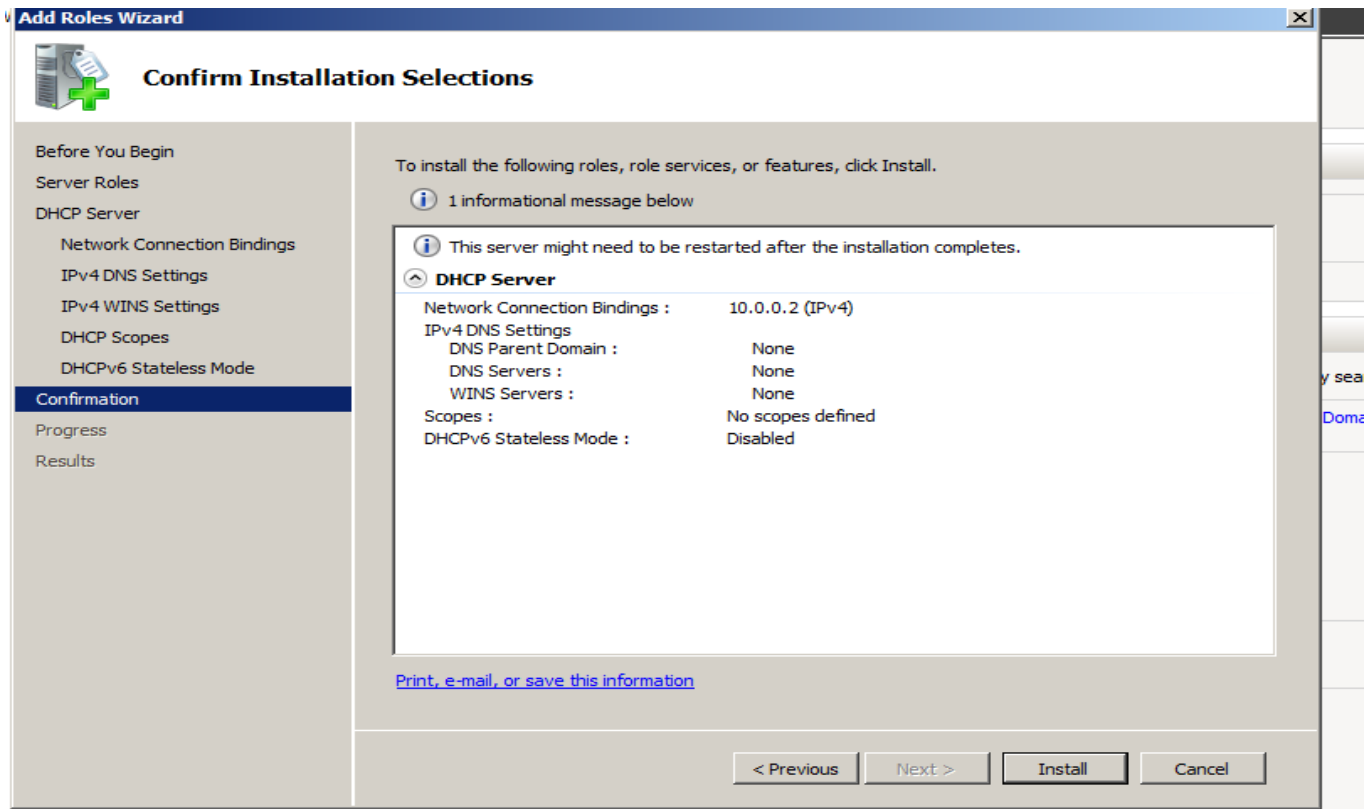
Add or edit scope



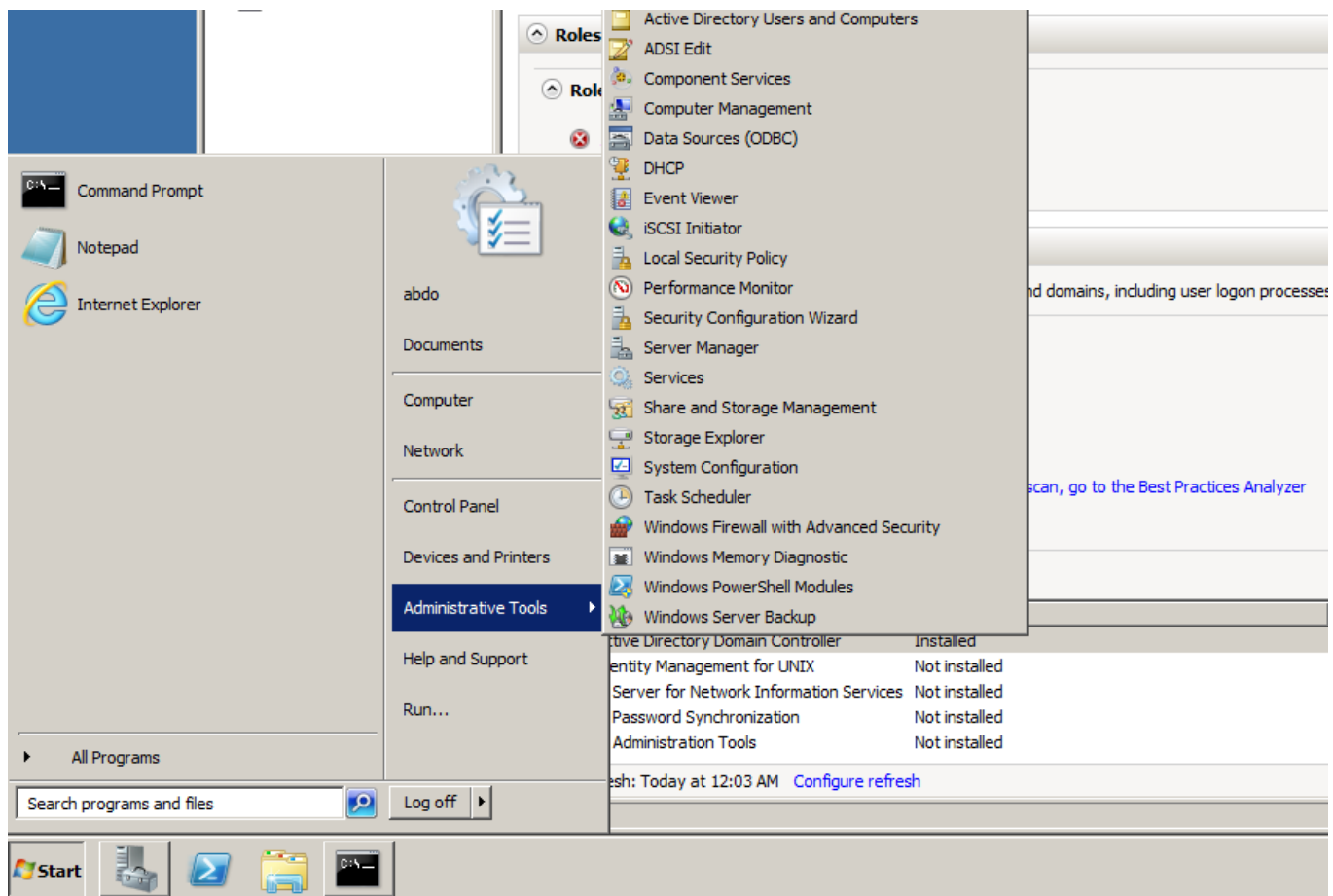
Configure DHCPV6



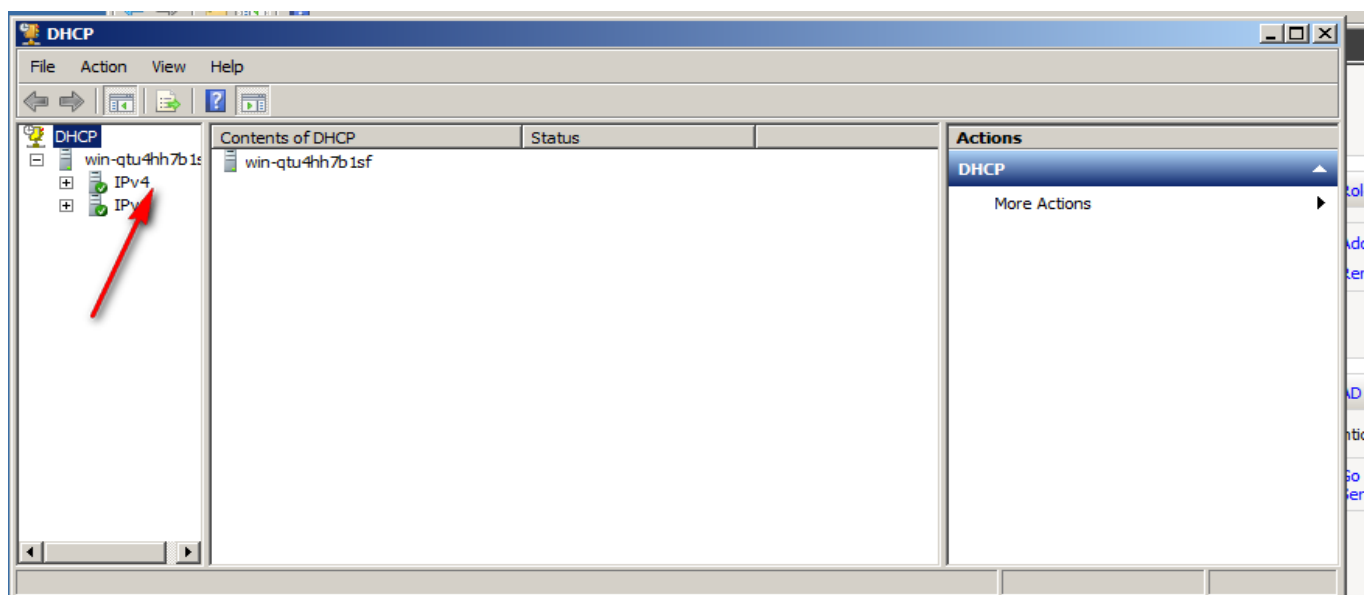
Install



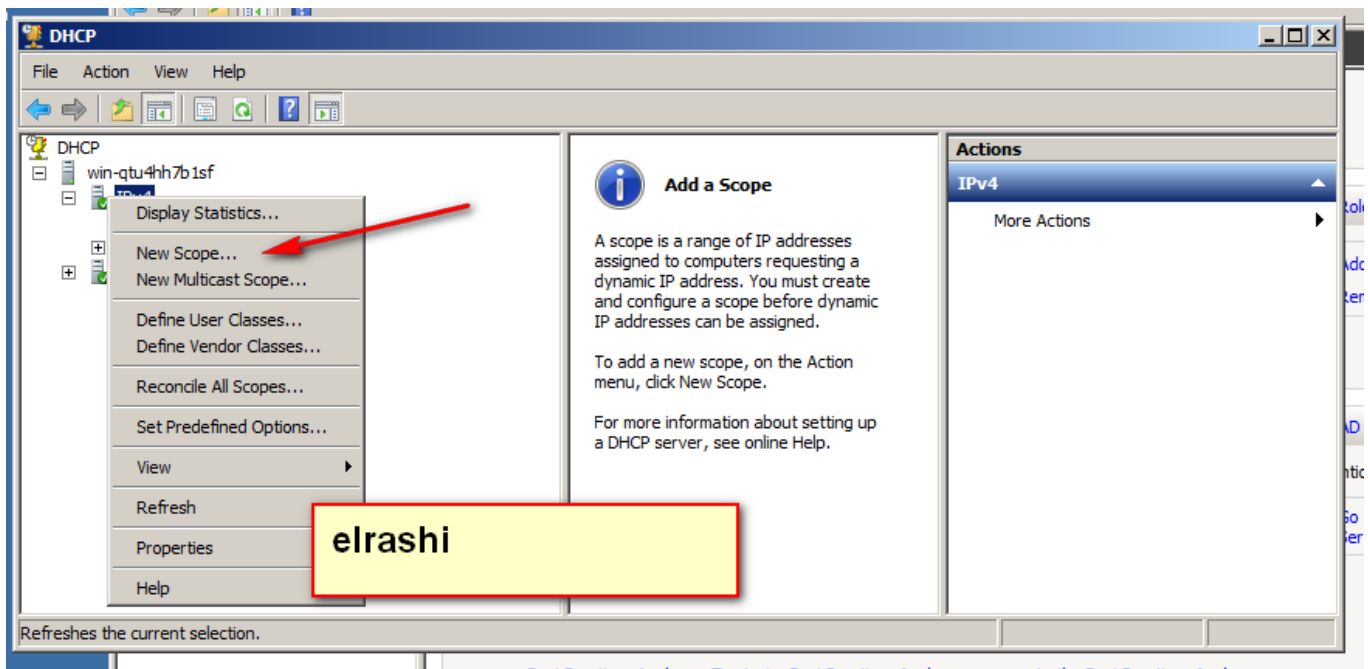
Open DHCP



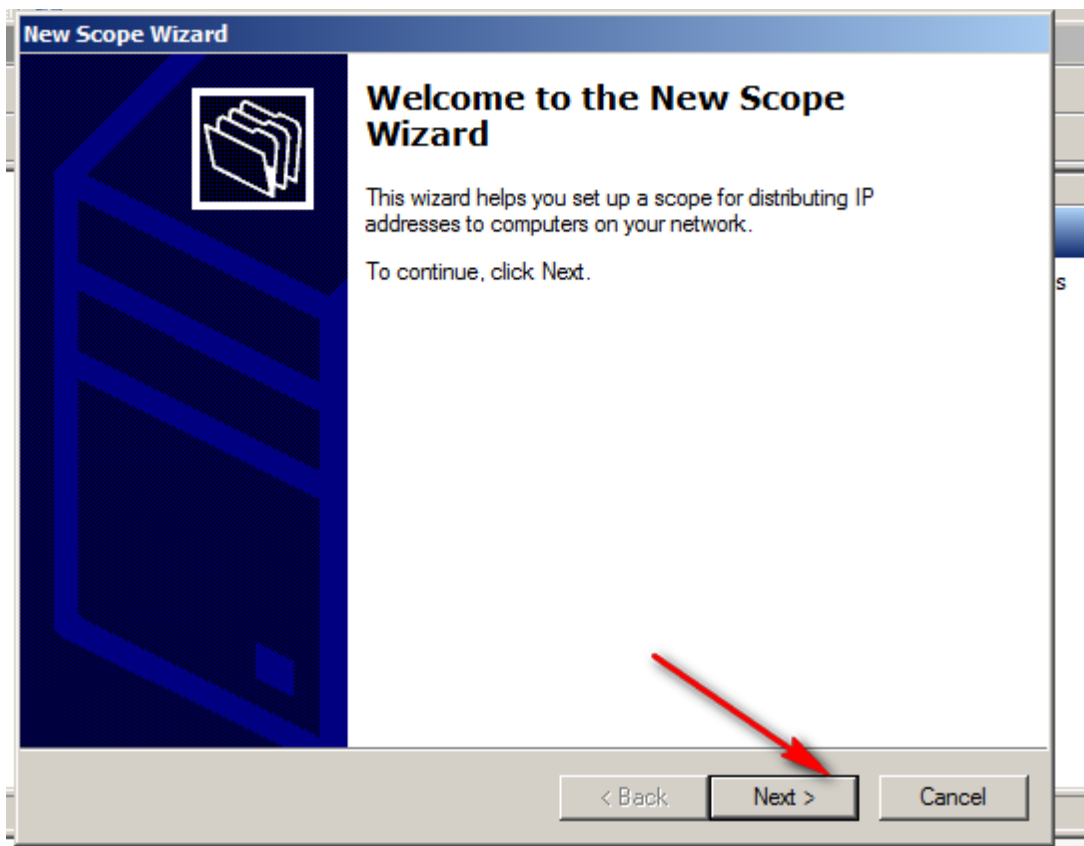
DHCP console



Add scope



Next



New scope

New Scope Wizard

Scope Name
You have to provide an identifying scope name. You also have the option of providing a description.

Type a name and description for this scope. This information helps you quickly identify how the scope is to be used on your network.

Name:

Description:

< Back Next > Cancel

Scope range

New Scope Wizard

IP Address Range
You define the scope address range by identifying a set of consecutive IP addresses.

Configuration settings for DHCP Server

Enter the range of addresses that the scope distributes.

Start IP address:

End IP address:

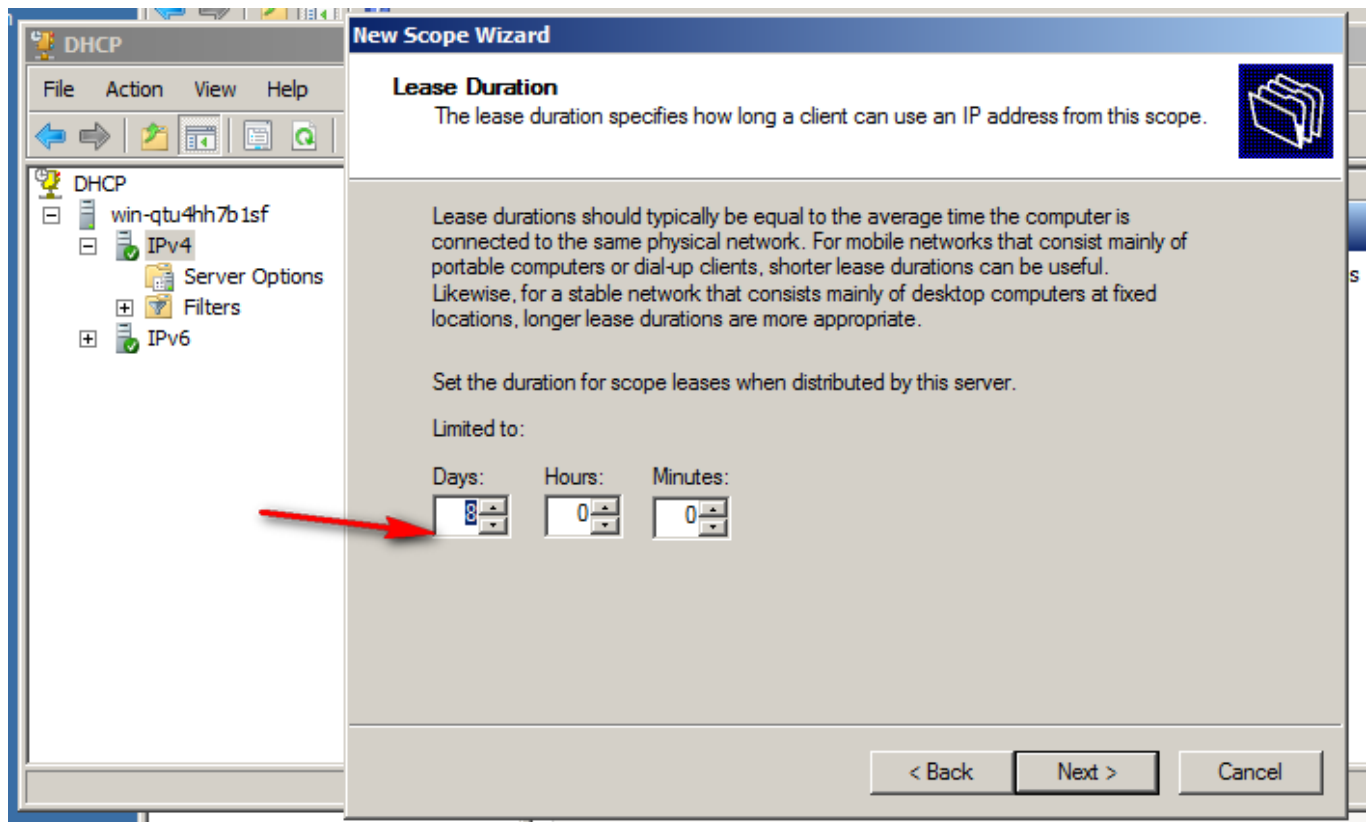
Configuration settings that propagate to DHCP Client

Length:

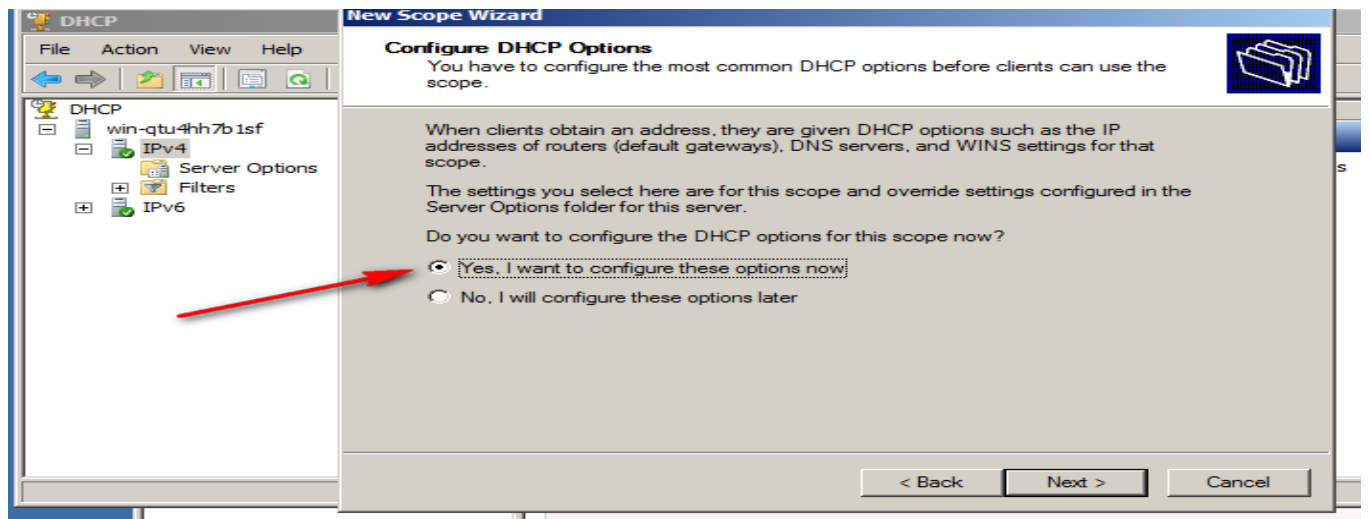
Subnet mask:

< Back Next > Cancel

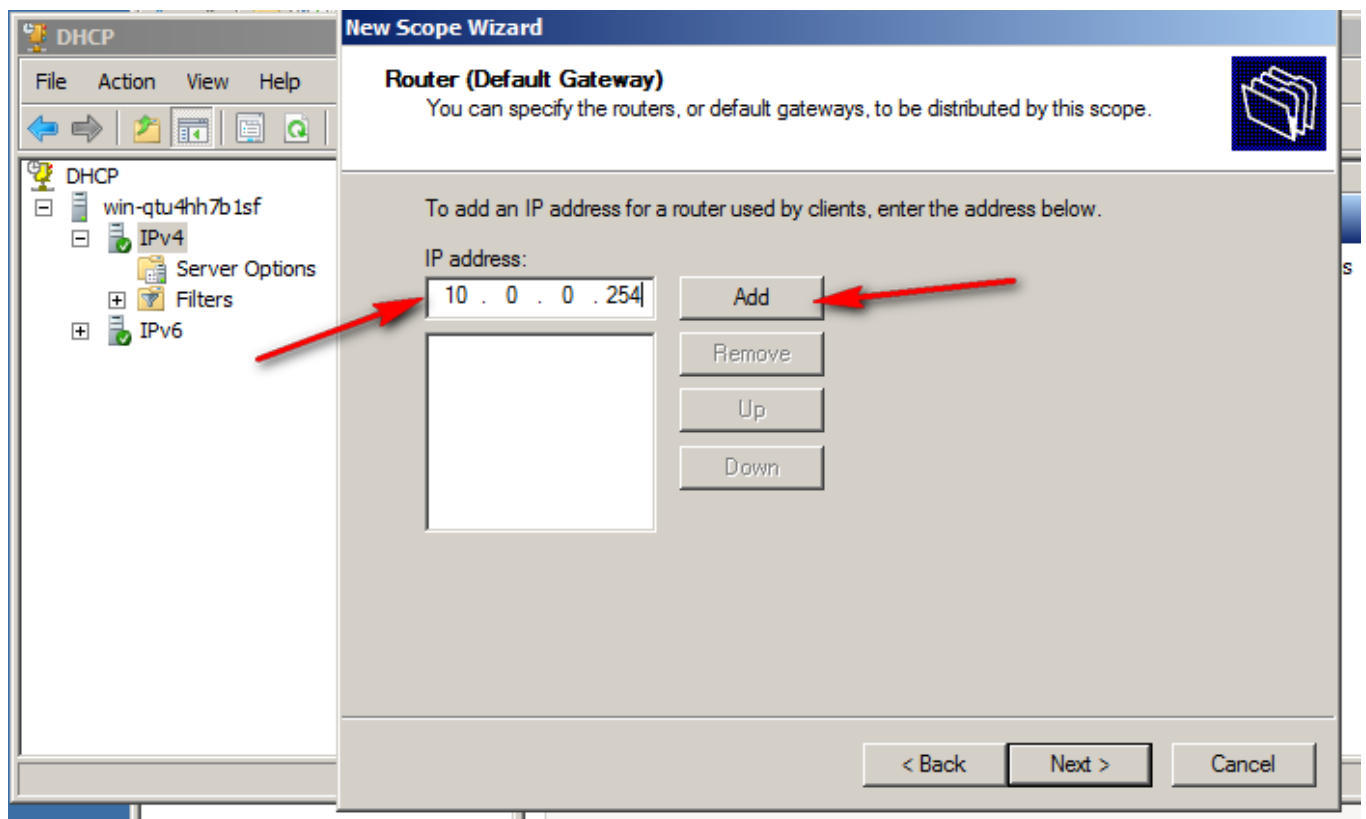
Lease duration



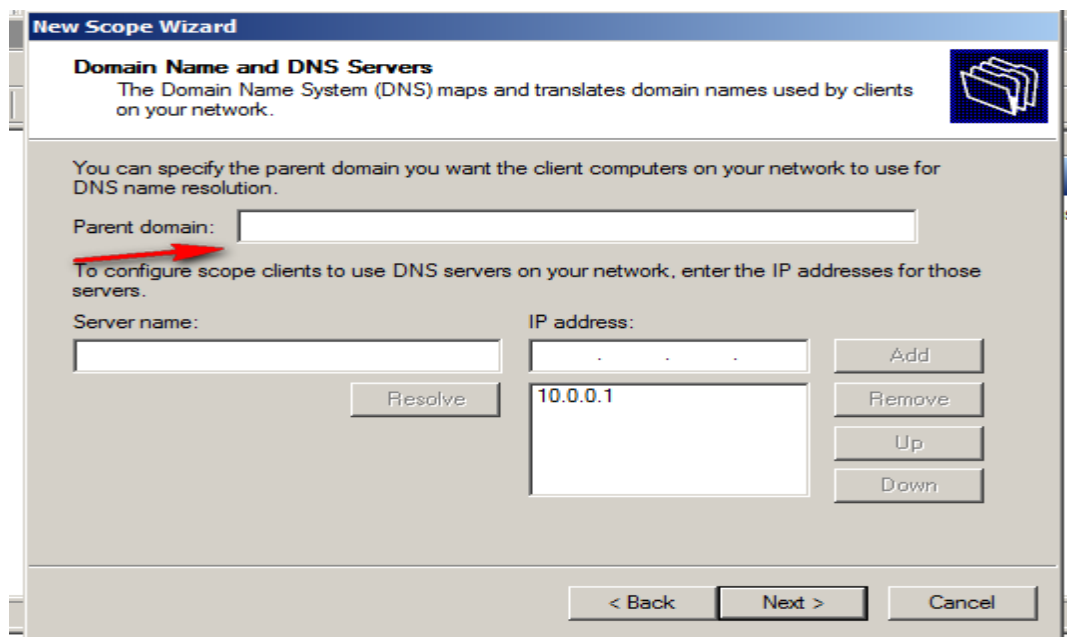
Configure the scope



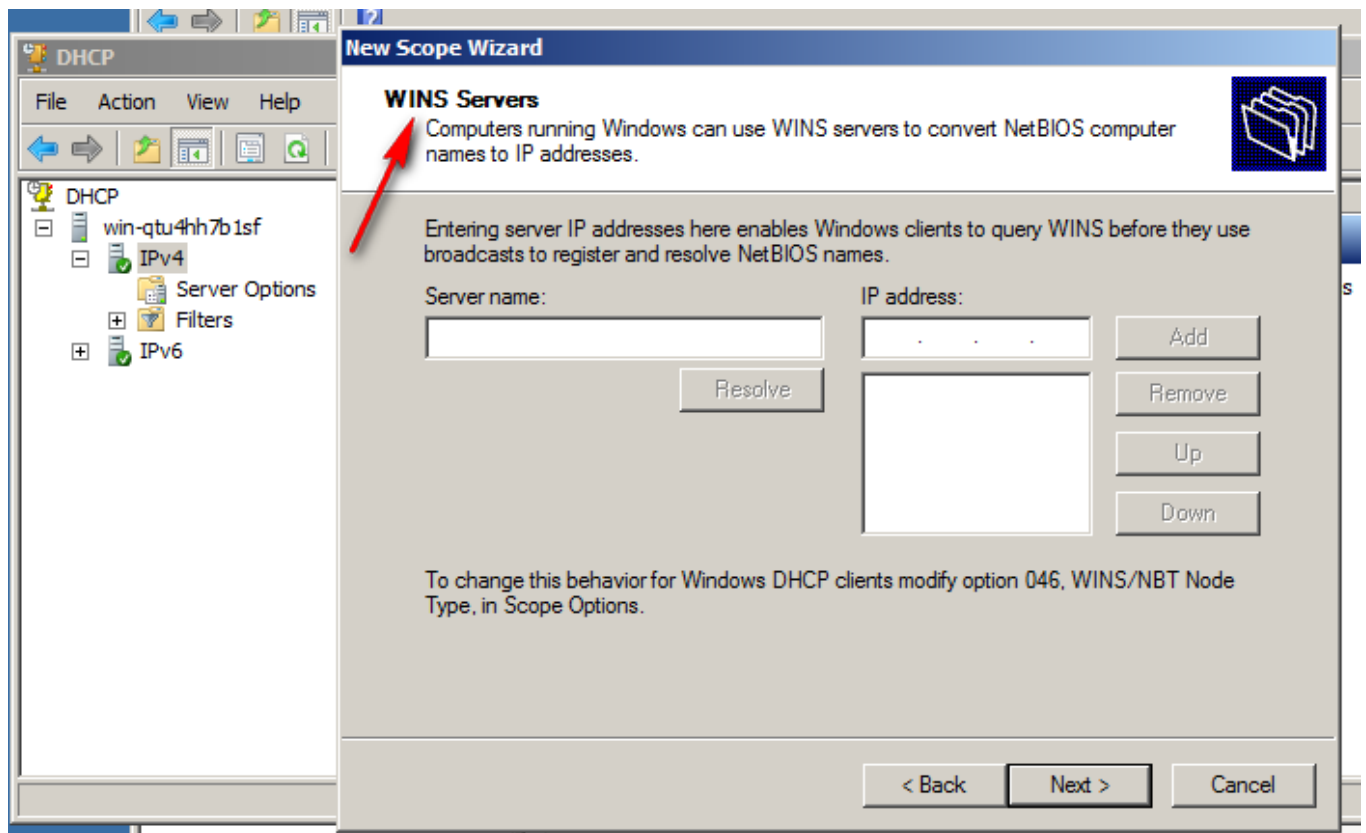
Add default gateway



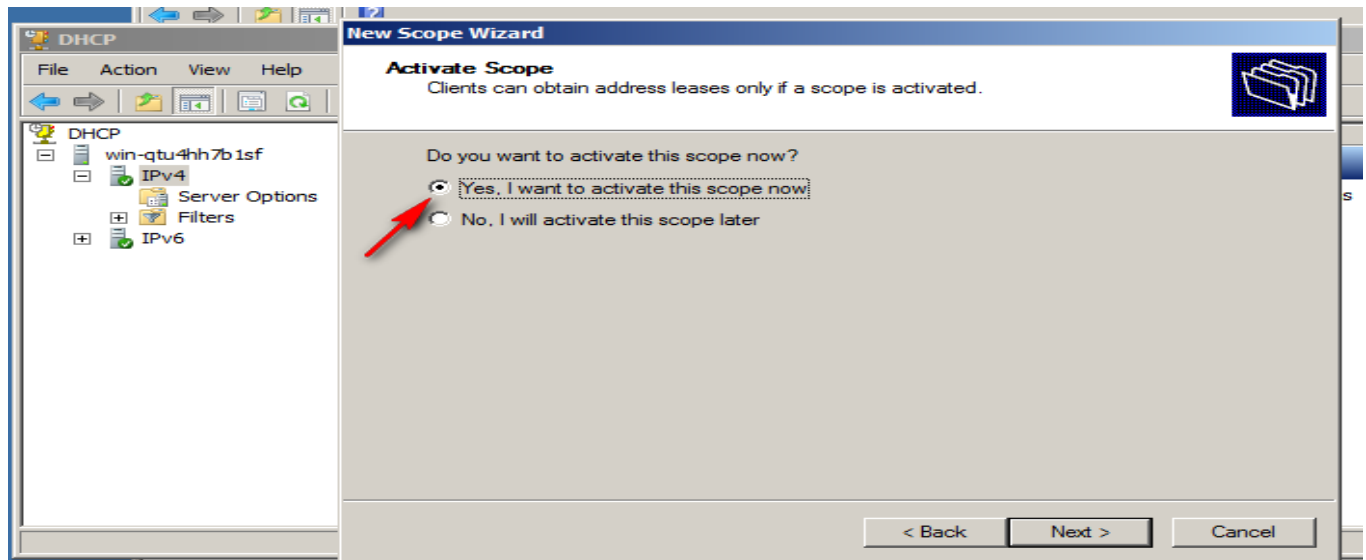
Add domain name



Wins servers



Activate the scope



Address pool

DHCP

win-qtu4hh7b1sf

IPv4

Scope [10.0.0.0] IT_scope

Address Pool

Address Leases

Reservations

Scope Options

Server Options

Filters

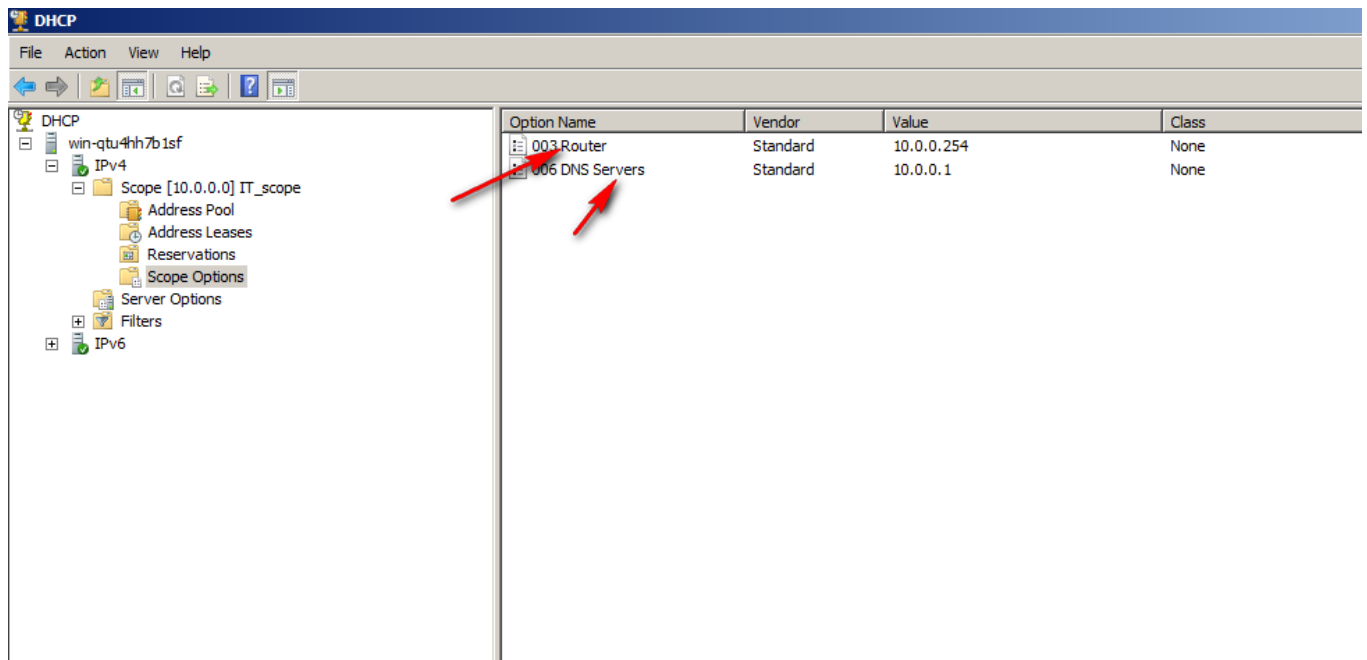
IPv6

Start IP Address	End IP Address	Description
10.0.0.1	10.0.0.254	Address range for distribution
10.0.0.1	10.0.0.1	IP Addresses excluded from distribution

Address leases

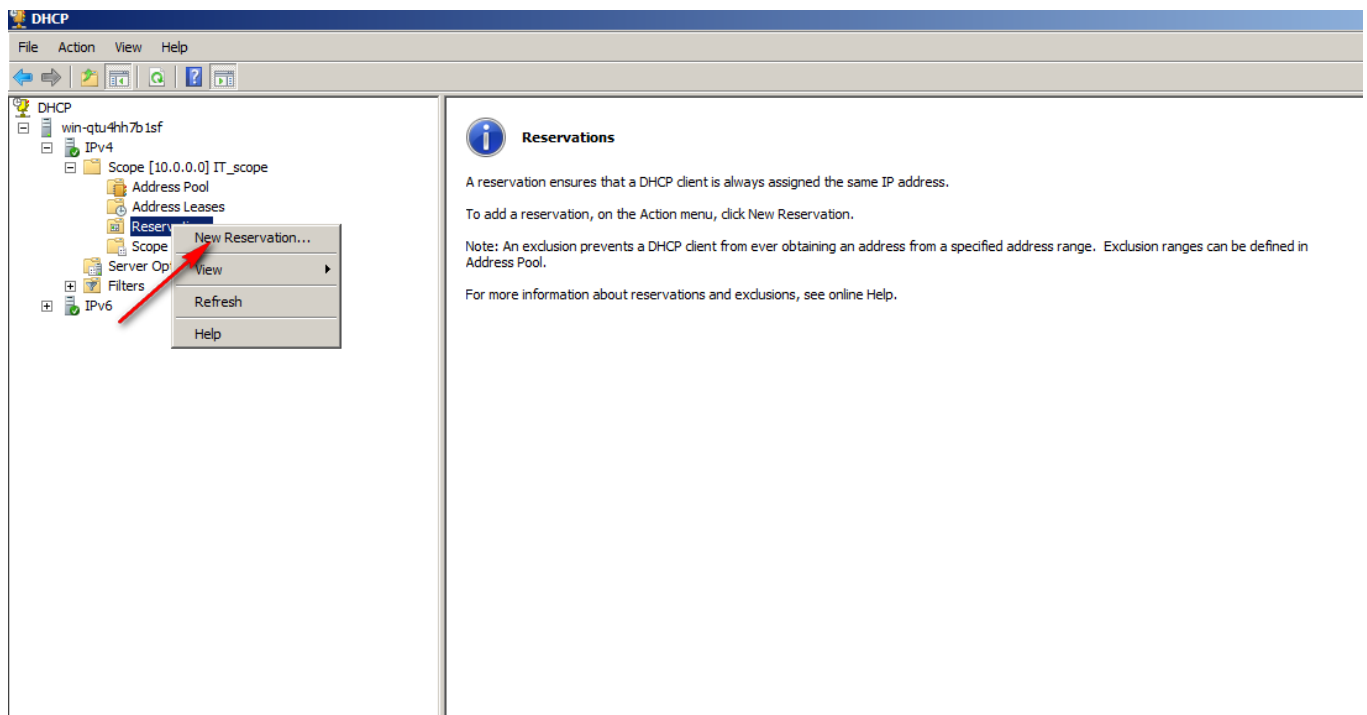
<

Scope options

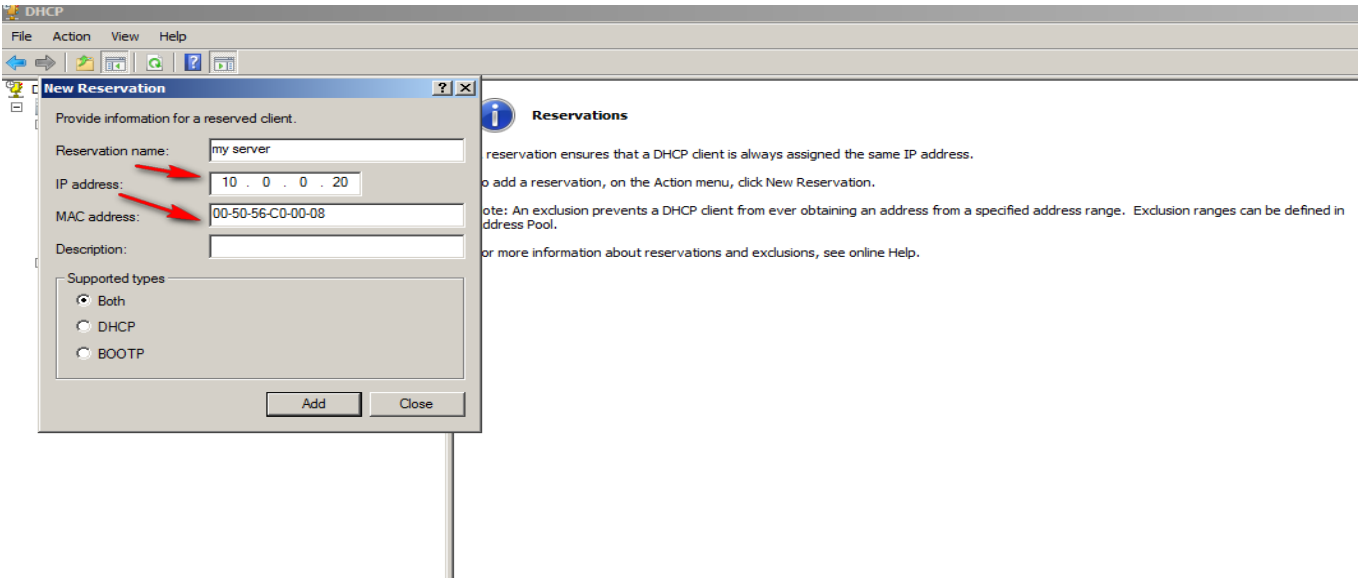


Reservation

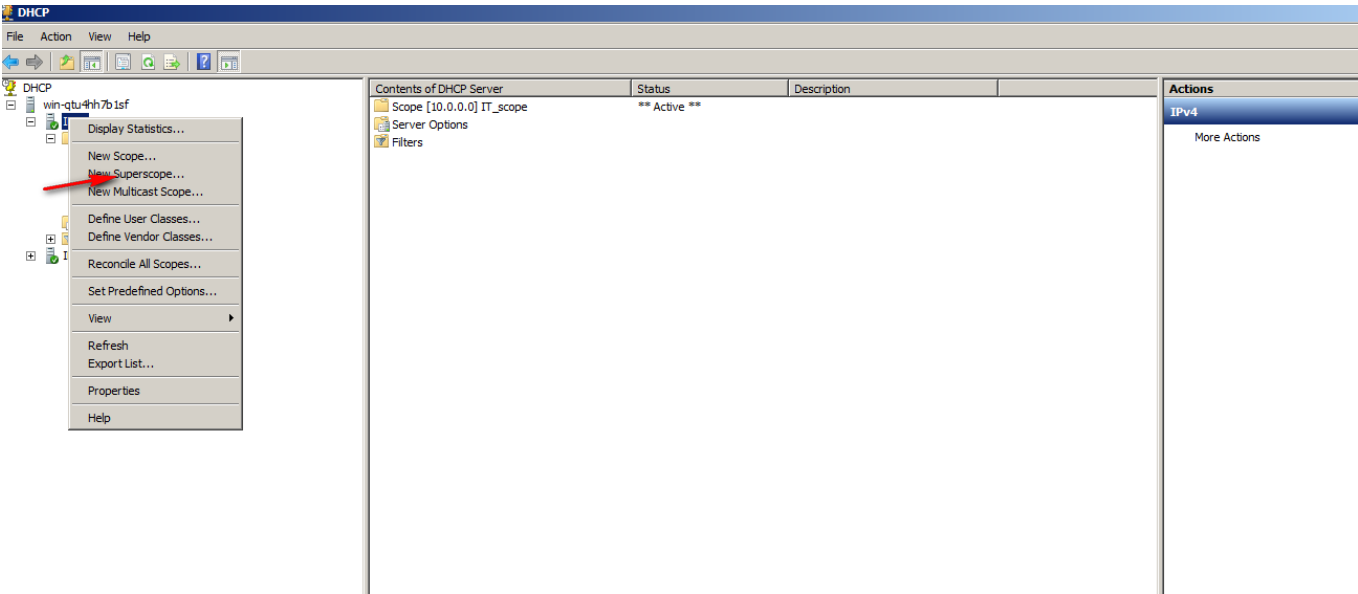
لحجز عنوان Ip address معين يعطه لجهاز معين عن طريق DHCP بحيث يكرس هذا العنوان لجهاز معين عن طريق Mac address

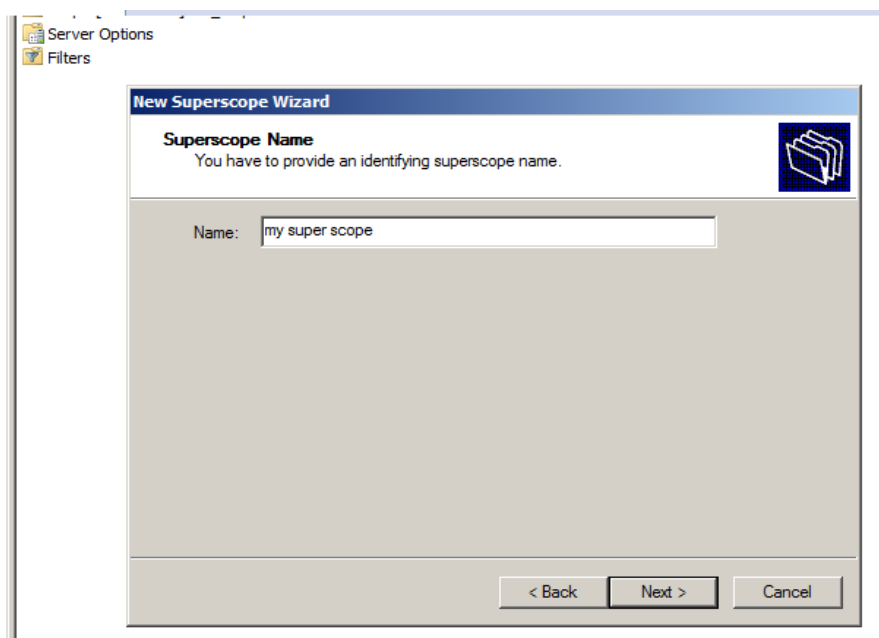
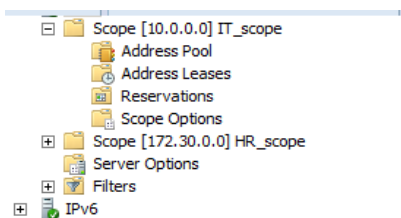


Reservation

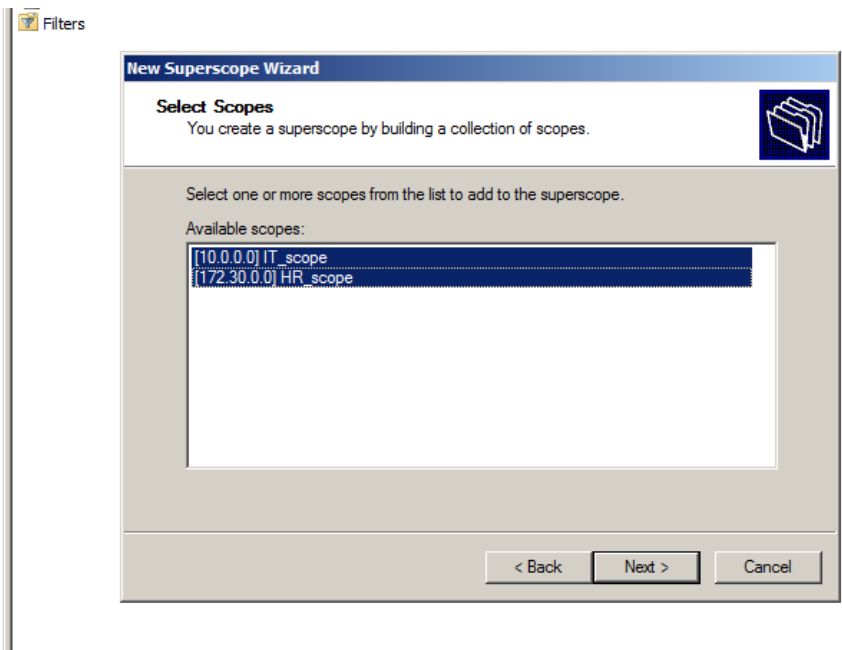
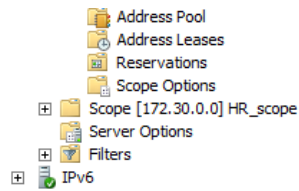


Superscope

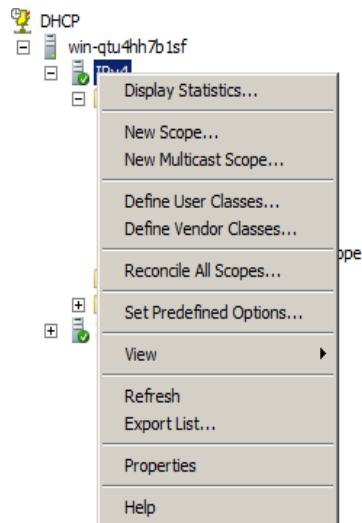




Superscope



Display statistics



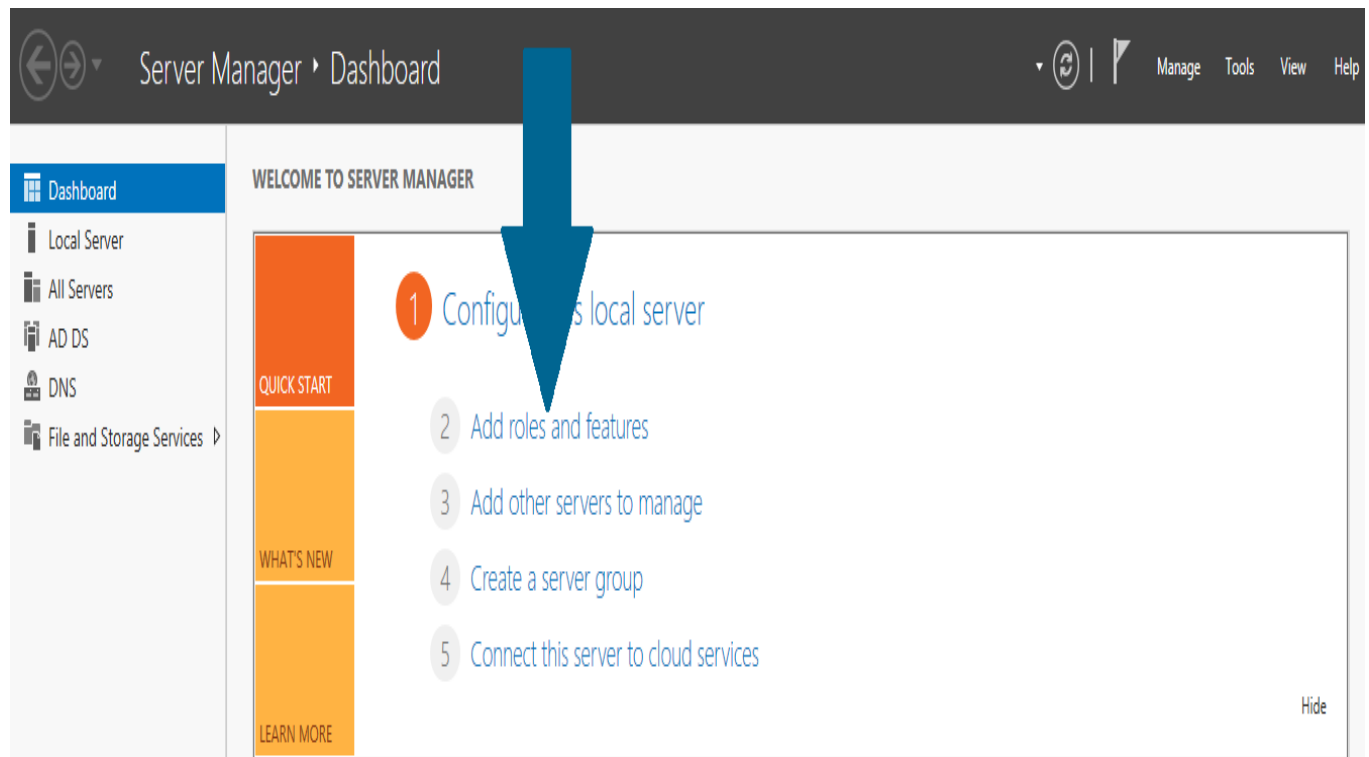
Contents of DHCP Server	Status	Description
Superscope my super scope	** Active **	
Server Options		
Filters		

8.2- DHCP server in windows server 2012R2

Before you proceed with setting up DHCP server on your Windows Server 2012 R2, you have to fulfill following four requirements for an installation and configuration to be successful.

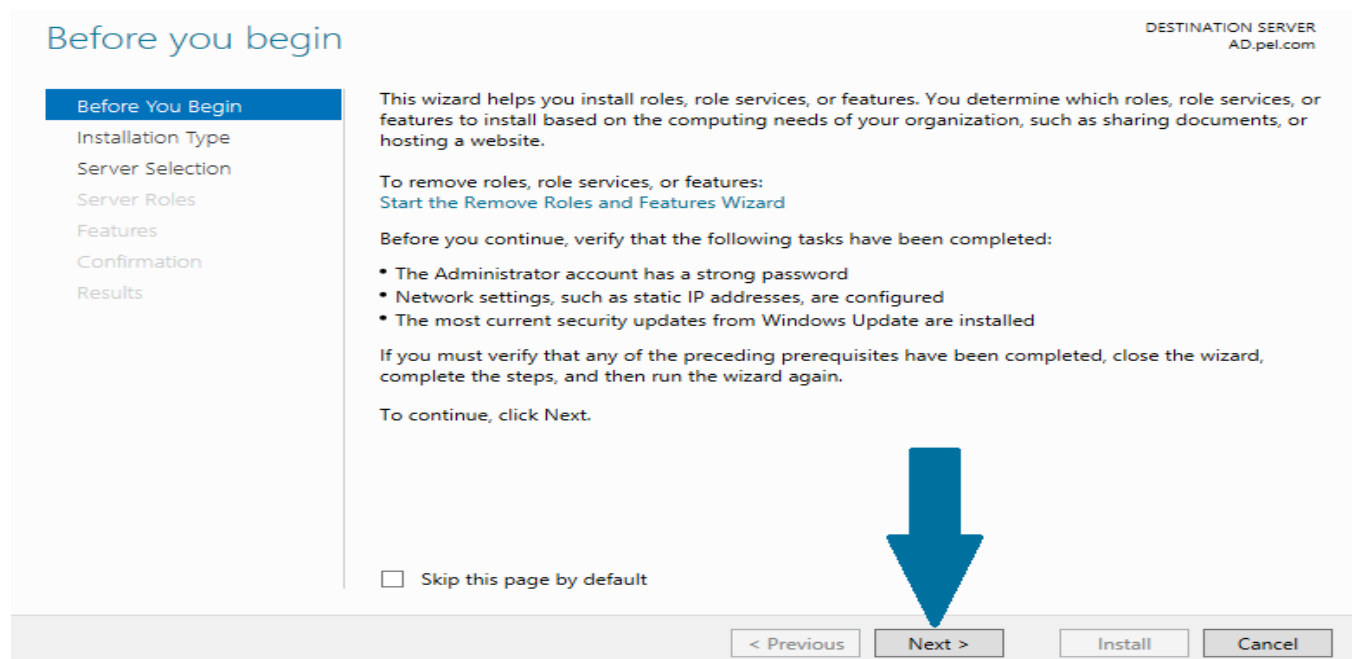
- Administrator account has strong password
- At least one static IP is configured
- Current security updates from Windows Update are installed
- Firewall is turned off

Open Server Manager from task bar and click Add roles and features



Before you run the installation wizard, make sure that an administrator account has a strong password, static IP is configured, and security updates from Windows updates are installed.

When you are done, click



Before you begin

DESTINATION SERVER
AD.pel.com

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

This wizard helps you install roles, role services, or features. You determine which roles, role services, or features to install based on the computing needs of your organization, such as sharing documents, or hosting a website.

To remove roles, role services, or features:
[Start the Remove Roles and Features Wizard](#)

Before you continue, verify that the following tasks have been completed:

- The Administrator account has a strong password
- Network settings, such as static IP addresses, are configured
- The most current security updates from Windows Update are installed

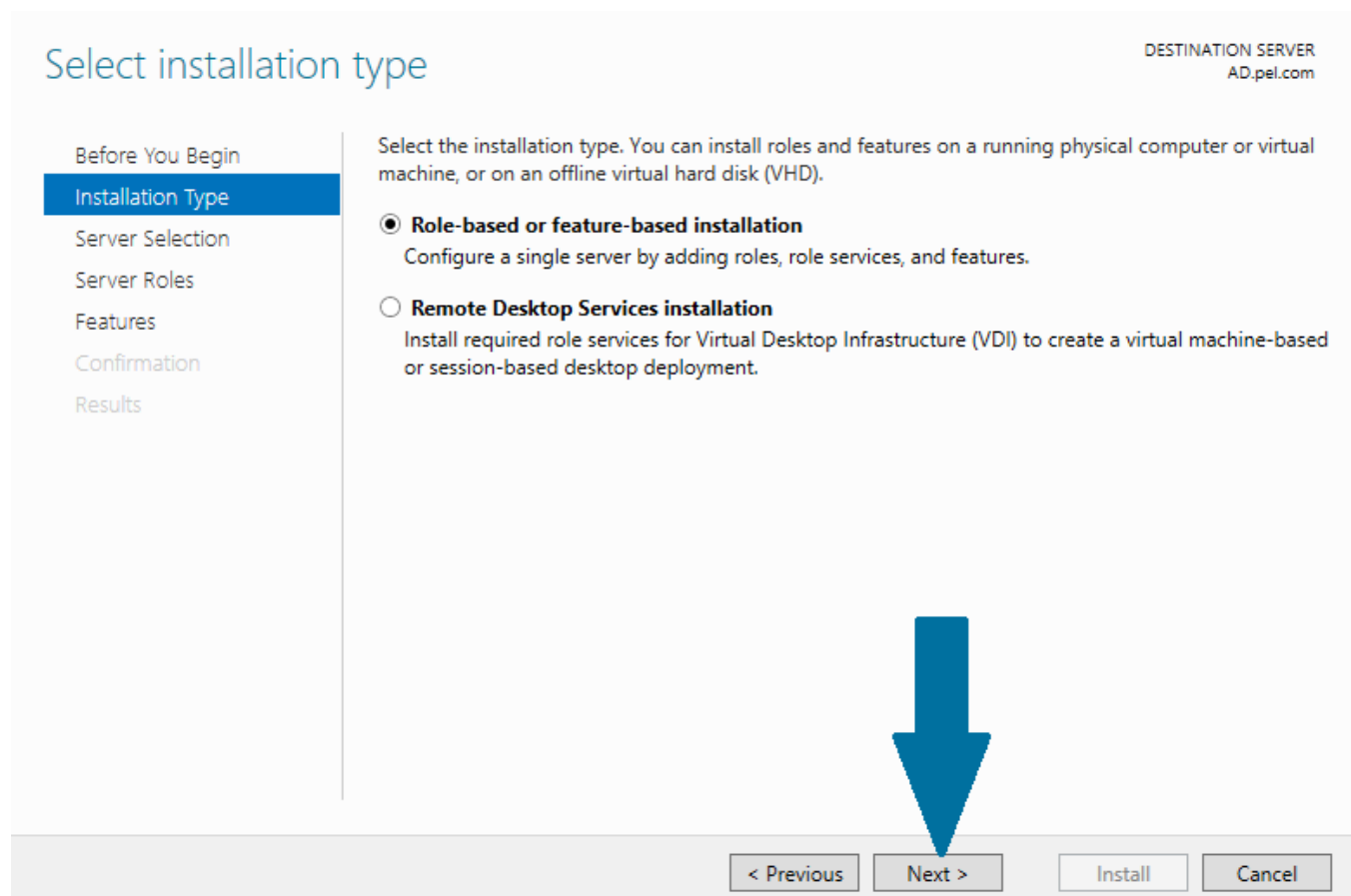
If you must verify that any of the preceding prerequisites have been completed, close the wizard, complete the steps, and then run the wizard again.

To continue, click Next.

☐ Skip this page by default

< Previous **Next >** Install Cancel

Select Role-based or feature-based installation and click Next



Select installation type

DESTINATION SERVER
AD.pel.com

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD).

☒ **Role-based or feature-based installation**
Configure a single server by adding roles, role services, and features.

☐ **Remote Desktop Services installation**
Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.

< Previous **Next >** Install Cancel

Select a destination server on which you want to install the DHCP server. In our case, there is only one server which is local server and it is selected by default. Click Next

Select destination server

DESTINATION SERVER
AD.pel.com

Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results

Select a server or a virtual hard disk on which to install roles and features.

☒ Select a server from the server pool
☐ Select a virtual hard disk

Server Pool

Filter:

Name	IP Address	Operating System
AD.pel.com	192.168.1.1	Microsoft Windows Server 2012 R2 Standard

1 Computer(s) found

This page shows servers that are running Windows Server 2012 and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.

< Previous **Next >** Install Cancel

Select DHCP server role by checking the appropriate box. As soon as you check the box, a small window will pop up alerting you that there are some other features which are also required to be installed along with DHCP server. Click Add Features

Select server roles

DESTINATION SERVER
AD.pel.com

Before You Begin
Installation Type
Server Selection
Server Roles
Features
DHCP Server
Confirmation
Results

Select one or more roles to install on the selected server.

Roles

- ☐ Active Directory Certificate Services
- ☒ Active Directory Domain Services (Installed)
- ☐ Active Directory Federation Services
- ☐ Active Directory Lightweight Directory Services
- ☐ Active Directory Rights Management Services
- ☐ Application Server
- ☒ **DHCP Server**
- ☒ DNS Server (Installed)
- ☐ Fax Server
- ☒ File and Storage Services (2 of 12 installed)
- ☐ Hyper-V
- ☐ Network Policy and Access Services
- ☐ Print and Document Services
- ☐ Remote Access
- ☐ Remote Desktop Services

Description

Dynamic Host Configuration Protocol (DHCP) Server enables you to centrally configure, manage, and provide temporary IP addresses and related information for client computers.

< Previous **Next >** Install Cancel

Click Next

Select features


DESTINATION SERVER

Before You Begin
Installation Type
Server Selection
Server Roles
Features
DHCP Server
Confirmation
Results

Select one or more features to install on the selected server.

Features	Description
<input type="checkbox"/> .NET Framework 3.5 Features	<p>.NET Framework 3.5 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer appealing user interfaces, protect your customers' personal identity information, enable seamless and secure communication, and provide the ability to model a range of business processes.</p>
<input checked="" type="checkbox"/> .NET Framework 4.5 Features (2 of 7 installed)	
<input type="checkbox"/> Background Intelligent Transfer Service (BITS)	
<input type="checkbox"/> BitLocker Drive Encryption	
<input type="checkbox"/> BitLocker Network Unlock	
<input type="checkbox"/> BranchCache	
<input type="checkbox"/> Client for NFS	
<input type="checkbox"/> Data Center Bridging	
<input type="checkbox"/> Direct Play	
<input type="checkbox"/> Enhanced Storage	
<input type="checkbox"/> Failover Clustering	
<input checked="" type="checkbox"/> Group Policy Management (Installed)	
<input type="checkbox"/> IIS Hostable Web Core	
<input type="checkbox"/> Ink and Handwriting Services	

< Previous **Next >** Install Cancel



Note the things outlined in the screen and click Next

DHCP Server

DESTINATION SERVER


Before You Begin
Installation Type
Server Selection
Server Roles
Features
DHCP Server
Confirmation
Results

The Dynamic Host Configuration Protocol allows servers to assign, or lease, IP addresses to computers and other devices that are enabled as DHCP clients. Deploying a DHCP server on the network provides computers and other TCP/IP-based network devices with valid IP addresses and the additional configuration parameters these devices need, called DHCP options. This allows computers and devices to connect to other network resources, such as DNS servers, WINS servers, and routers.

Things to note:

- You should configure at least one static IP address on this computer.
- Before you install DHCP Server, you should plan your subnets, scopes and exclusions. Store the plan in a safe place for later reference.

< Previous **Next >** Install Cancel



Confirm your installation selections and click Install

Confirm installation selections

DESTINATION SERVER

Before You Begin
Installation Type
Server Selection
Server Roles
Features
DHCP Server
Confirmation
Results

To install the following roles, role services, or features on selected server, click Install.

☒ Restart the destination server automatically if required

Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.

DHCP Server

Remote Server Administration Tools

Role Administration Tools

DHCP Server Tools

Export configuration settings
Specify an alternate source path

< Previous Next > **Install** Cancel

Click Close to finish the installation

Installation progress

DESTINATION SERVER

Before You Begin
Installation Type
Server Selection
Server Roles
Features
DHCP Server
Confirmation
Results

View installation progress

i Feature installation

Configuration required. Installation succeeded on AD.pel.com.

DHCP Server

Launch the DHCP post-install wizard

[Complete DHCP configuration](#)

Remote Server Administration Tools

Role Administration Tools

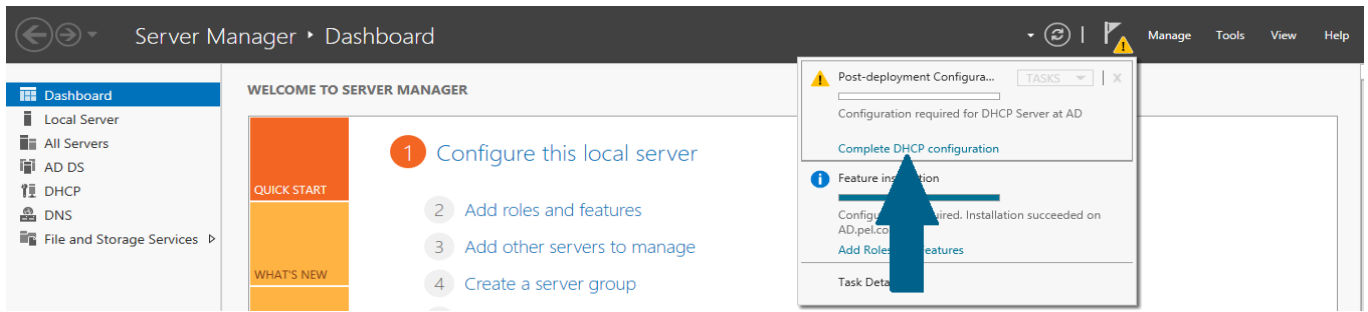
DHCP Server Tools

1 You can close this wizard without interrupting running tasks. View task progress or open this page again by clicking Notifications in the command bar, and then Task Manager.

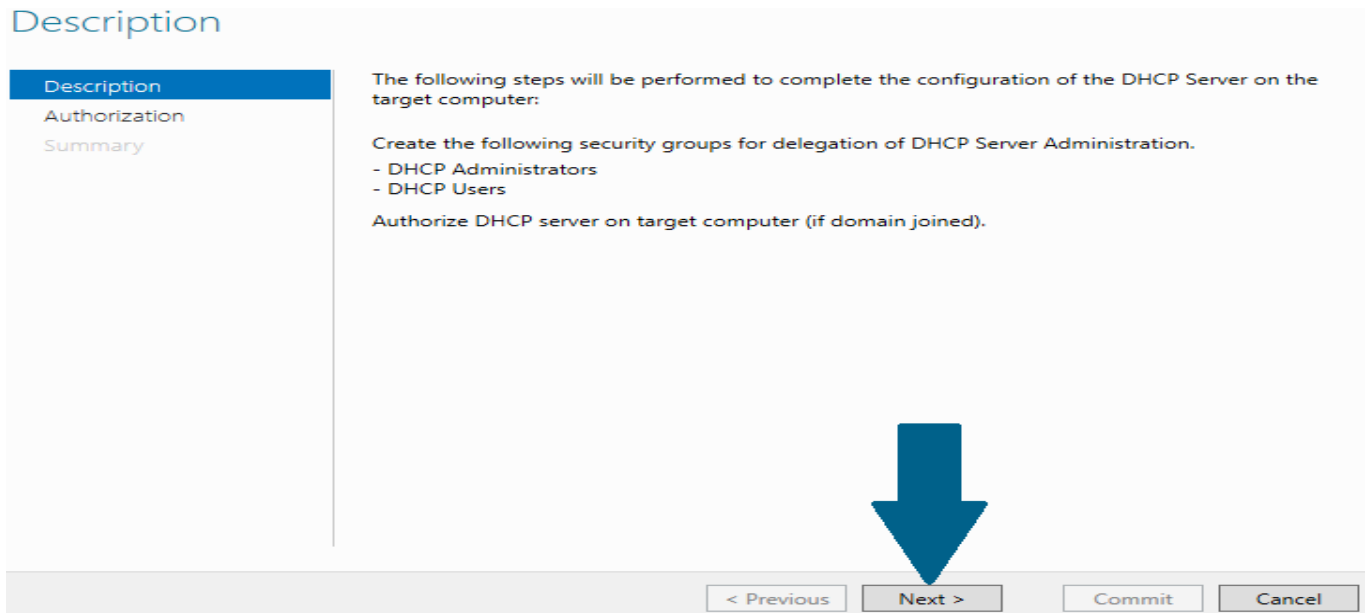
Export configuration settings

< Previous Next > **Close** Cancel

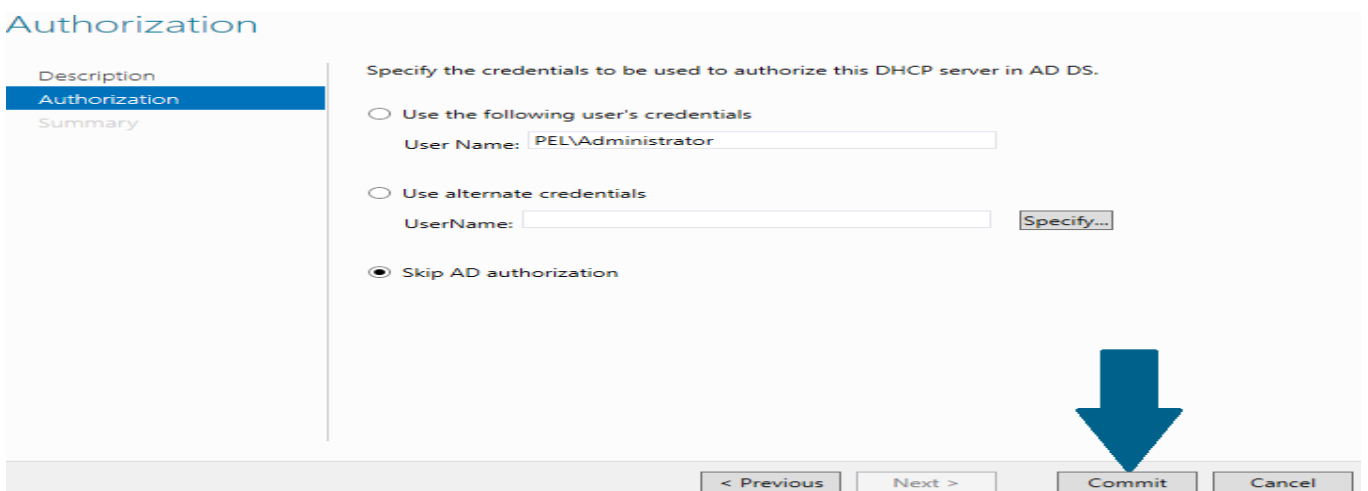
Configuring DHCP Server and Creating Scope: Open Server Manager and click notifications icon. A small window will appear. Click Complete DHCP configuration



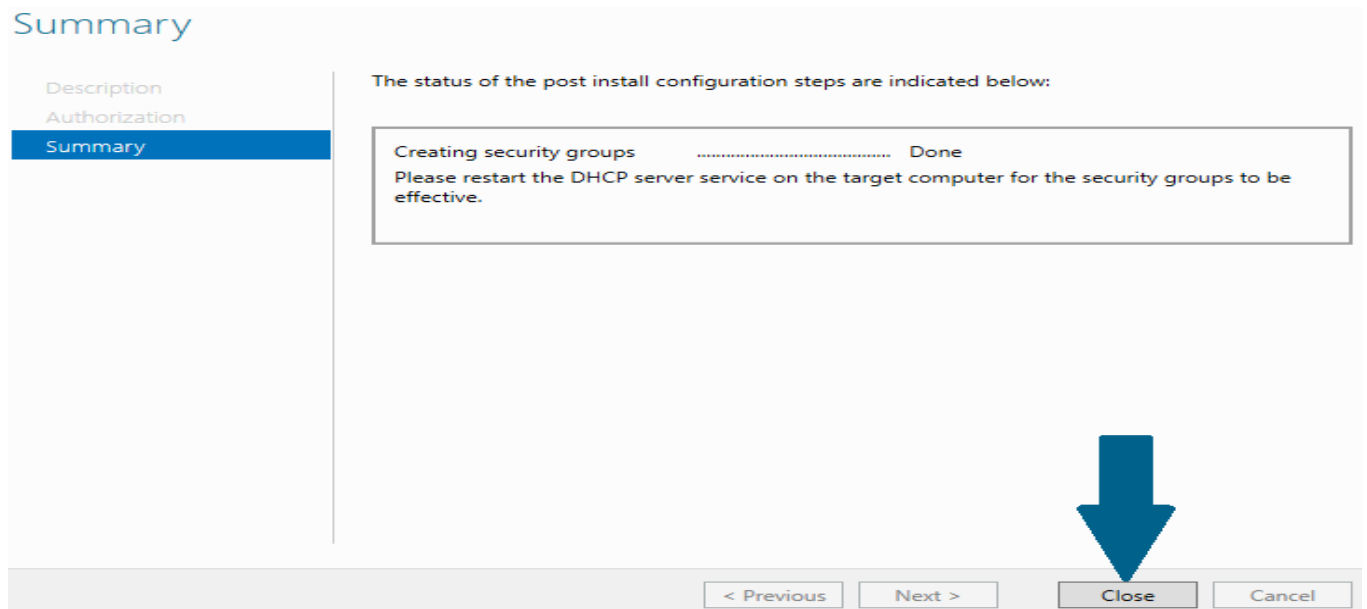
Click Next



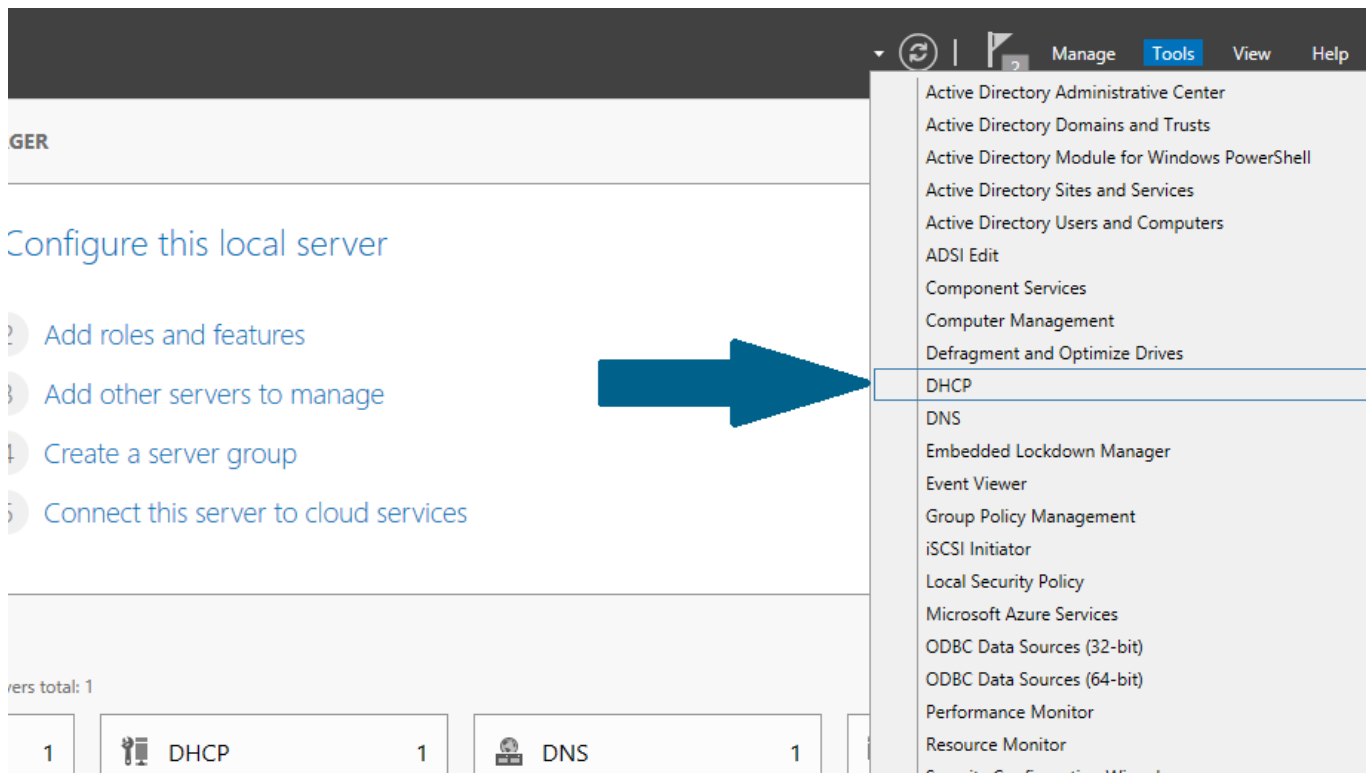
Choose Skip AD authorization since we do not have any AD configured and click Commit



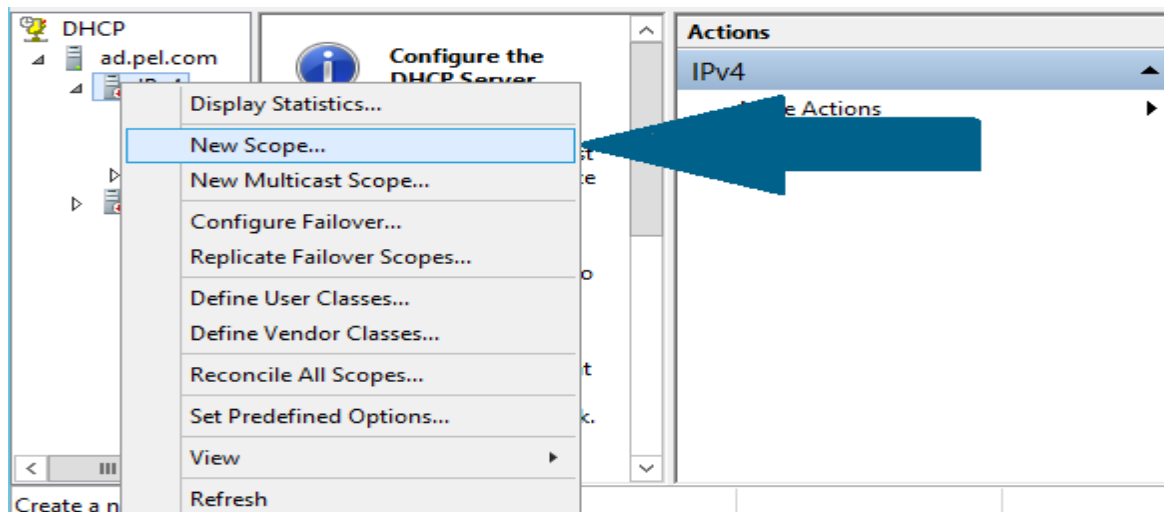
Read the summary and click Close



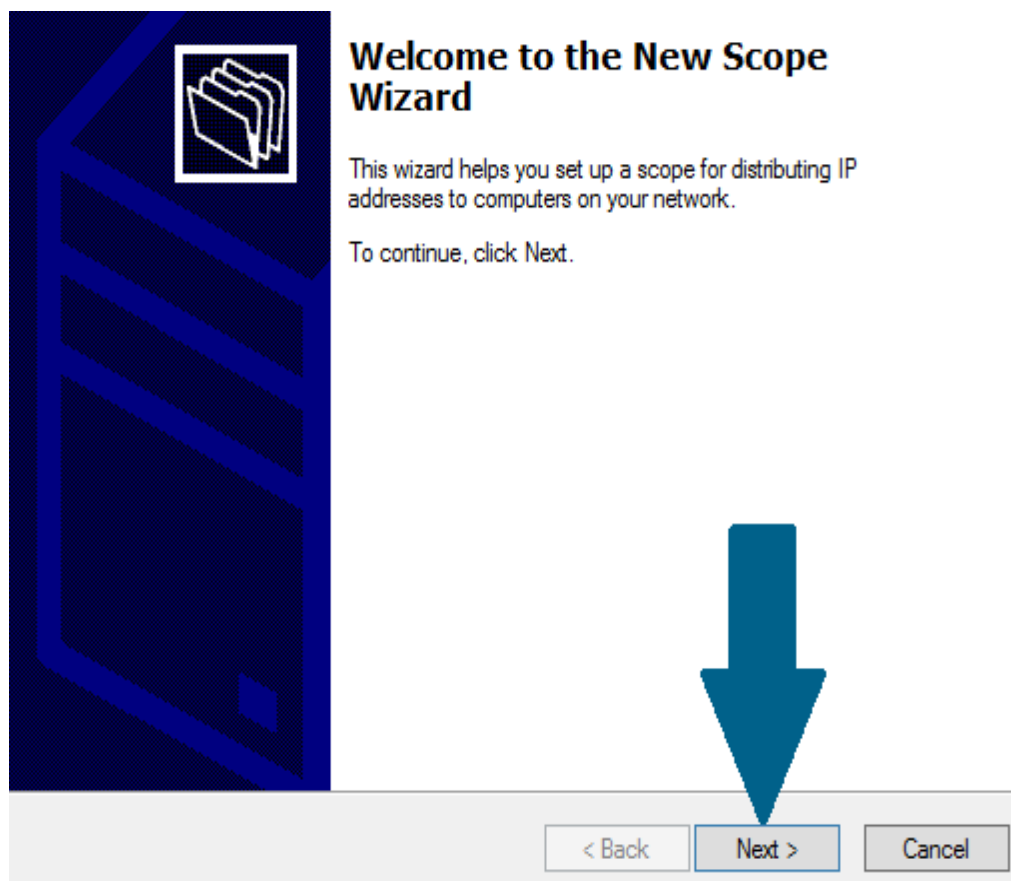
Open Server Manager and click on Tools. When a small window appear, scroll to DHCP and click it



In management console, right click on IPv4 and scroll to New Scope and click it



Click Next



Provide name and meaningful description of this new scope and click Next

Scope Name

You have to provide an identifying scope name. You also have the option of providing a description.



Type a name and description for this scope. This information helps you quickly identify how the scope is to be used on your network.

Name:

Description:



< Back

Next >

Cancel

Provide IP address range along with sub net you need to distribute to client machines and click Next

IP Address Range

You define the scope address range by identifying a set of consecutive IP addresses.



Configuration settings for DHCP Server

Enter the range of addresses that the scope distributes.

Start IP address:

End IP address:

Configuration settings that propagate to DHCP Client

Length:

Subnet mask:



< Back

Next >

Cancel

Provide any IP addresses you need to exclude from pool and click Add. I have excluded a first IP address which is statically assigned to my DHCP server. Click Next

Add Exclusions and Delay

Exclusions are addresses or a range of addresses that are not distributed by the server. A delay is the time duration by which the server will delay the transmission of a DHCP OFFER message.

Type the IP address range that you want to exclude. If you want to exclude a single address, type an address in Start IP address only.

Start IP address: End IP address:

Excluded address range:

Address 192.168.1.1

Subnet delay in milli second:

Keep lease duration as 8 days and click Next

Lease Duration

The lease duration specifies how long a client can use an IP address from this scope.

Lease durations should typically be equal to the average time the computer is connected to the same physical network. For mobile networks that consist mainly of portable computers or dial-up clients, shorter lease durations can be useful. Likewise, for a stable network that consists mainly of desktop computers at fixed locations, longer lease durations are more appropriate.

Set the duration for scope leases when distributed by this server.

Limited to:

Days: Hours: Minutes:

Choose No, I will configure these options later and click Next

Configure DHCP Options

You have to configure the most common DHCP options before clients can use the scope.



When clients obtain an address, they are given DHCP options such as the IP addresses of routers (default gateways), DNS servers, and WINS settings for that scope.

The settings you select here are for this scope and override settings configured in the Server Options folder for this server.

Do you want to configure the DHCP options for this scope now?

☐ Yes, I want to configure these options now

☒ No, I will configure these options later

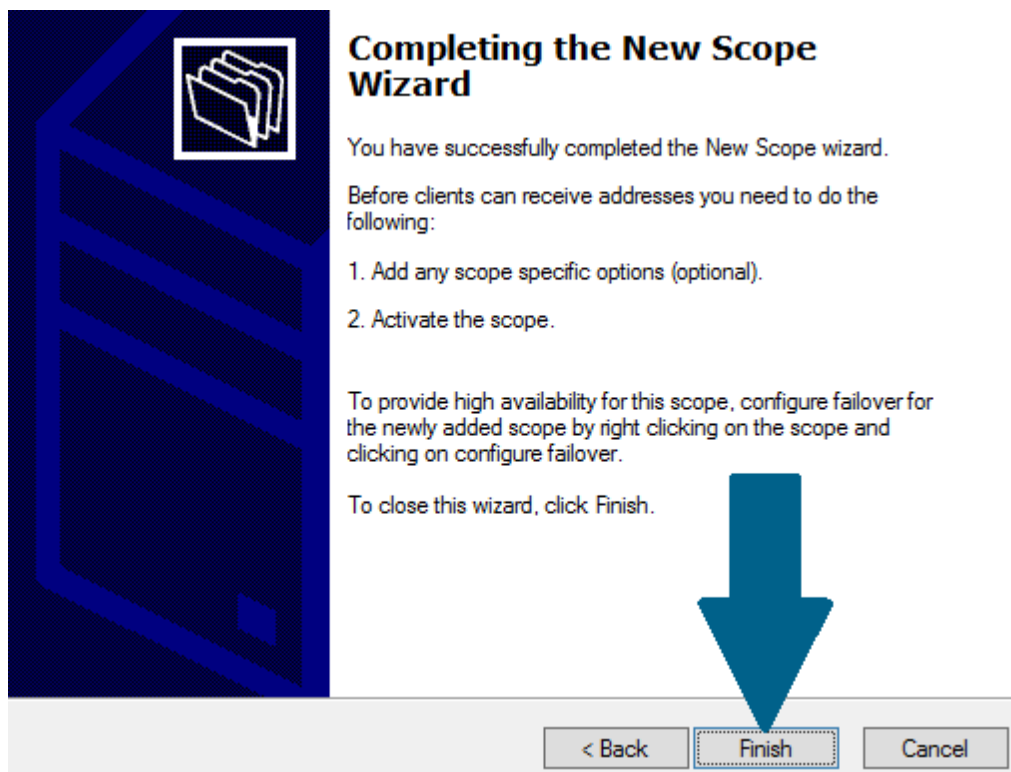


< Back

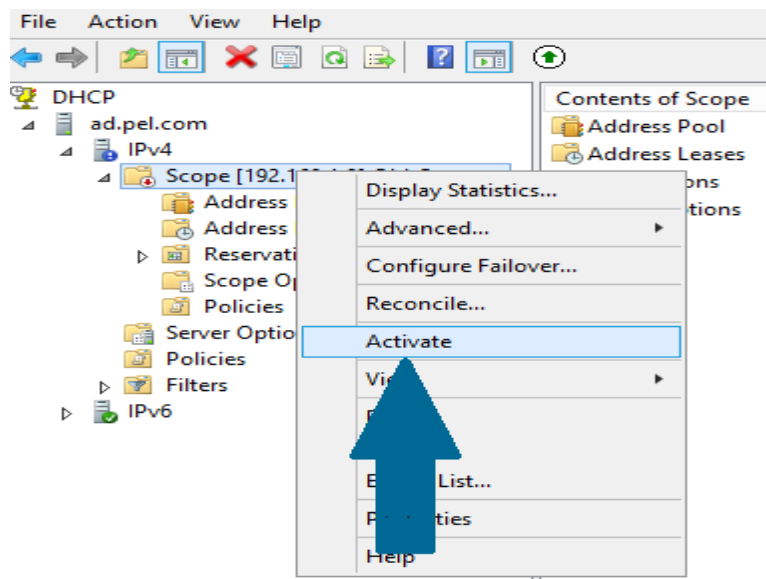
Next >

Cancel

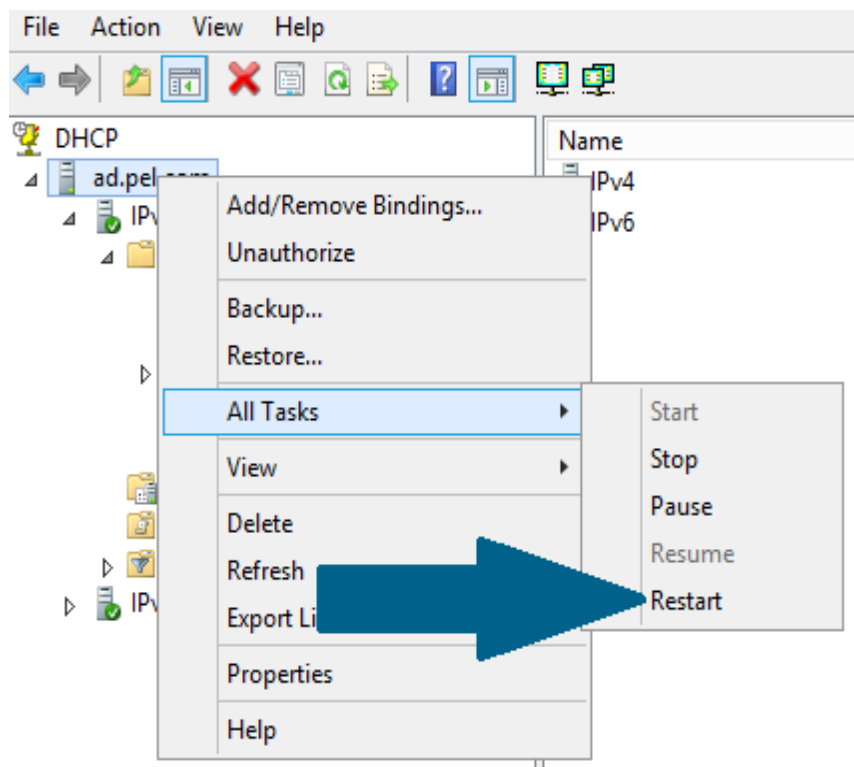
Click Finish to end the new scope wizard



Right-click on new scope you just created in above step and click Activate



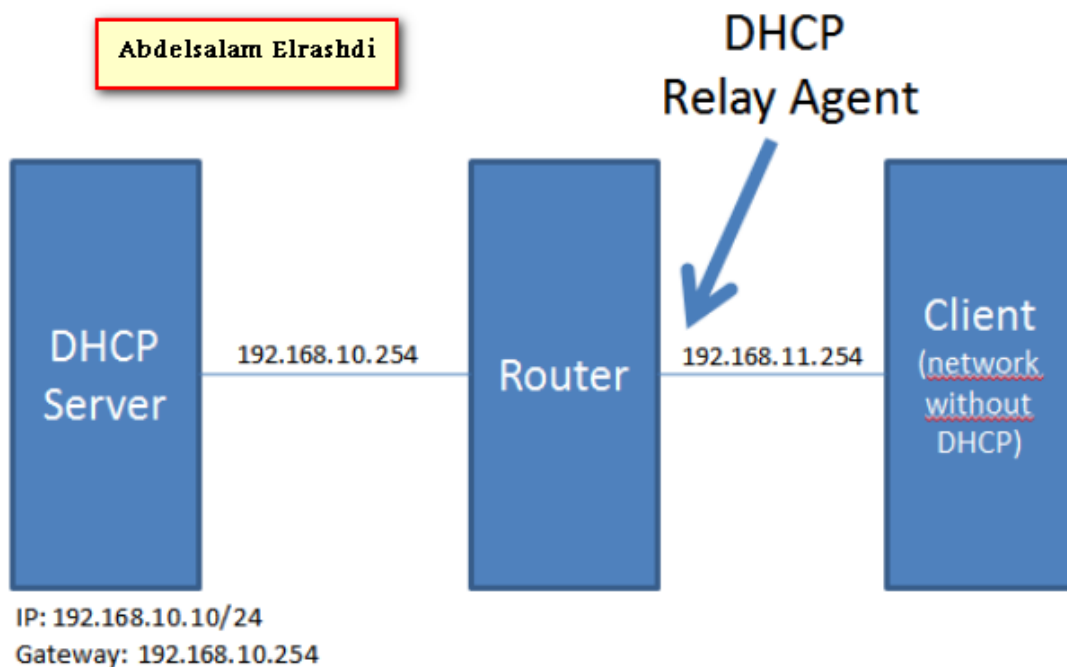
Right-click on your server, scroll to All Tasks and then click Restart to finish with configuration



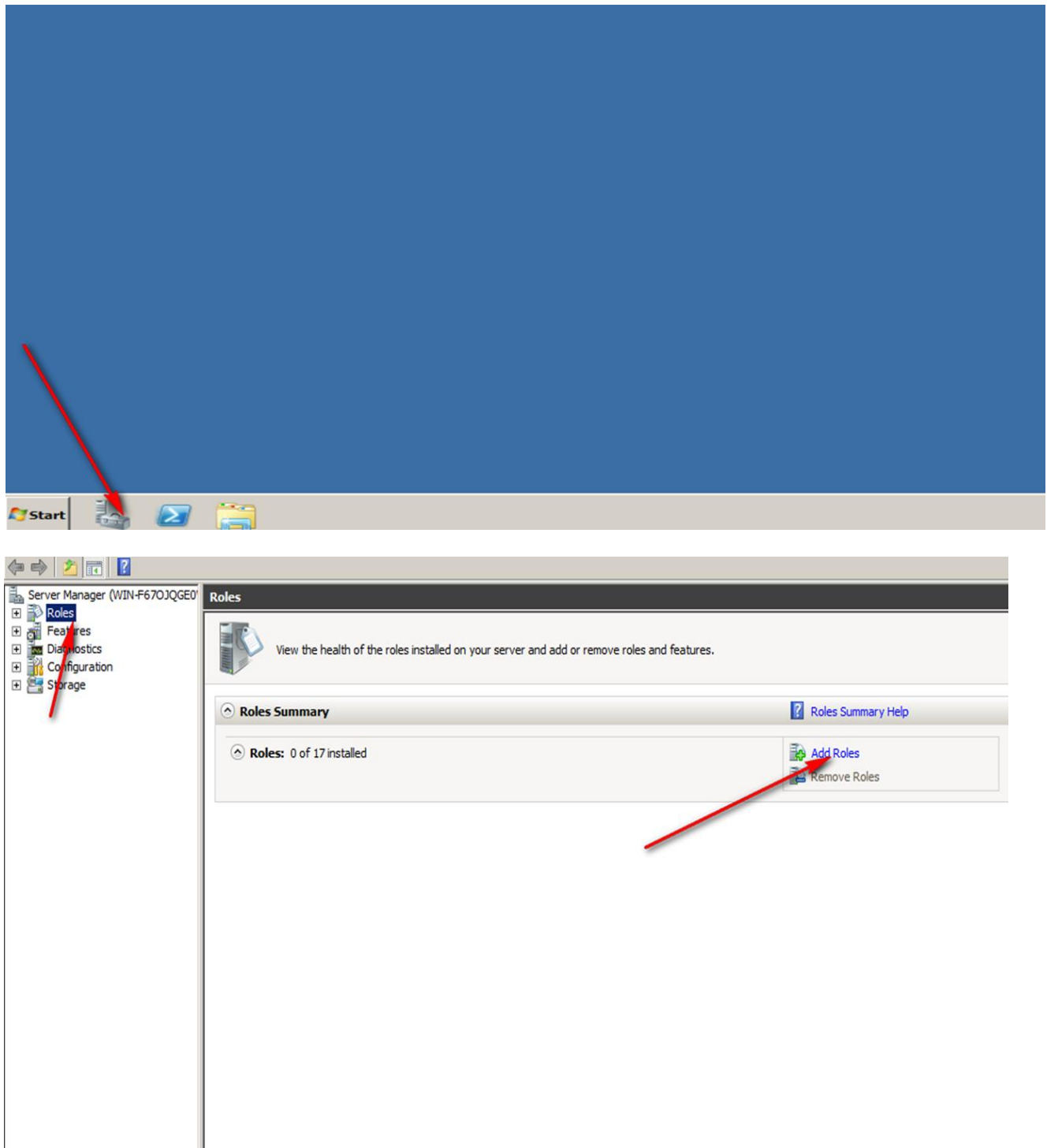
9-DHCP Relay Agent

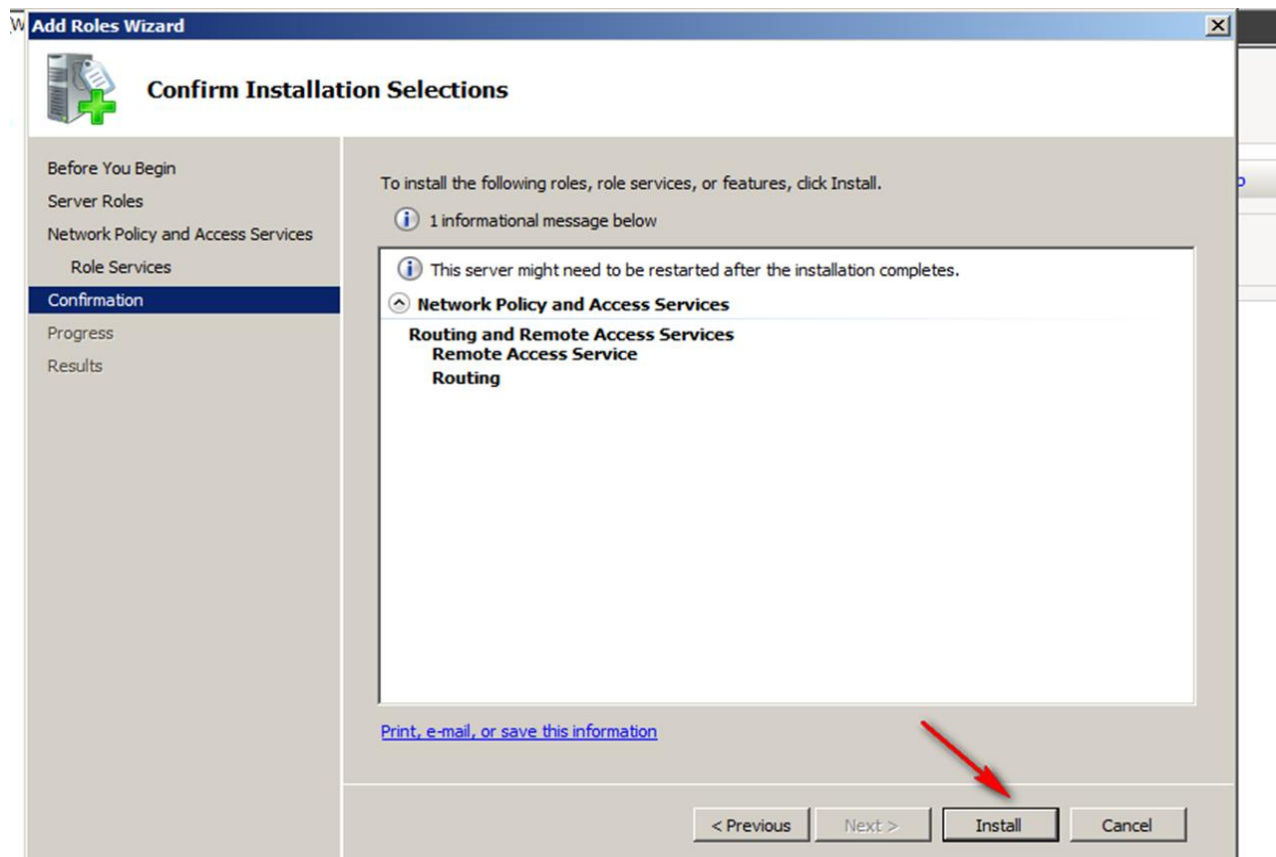
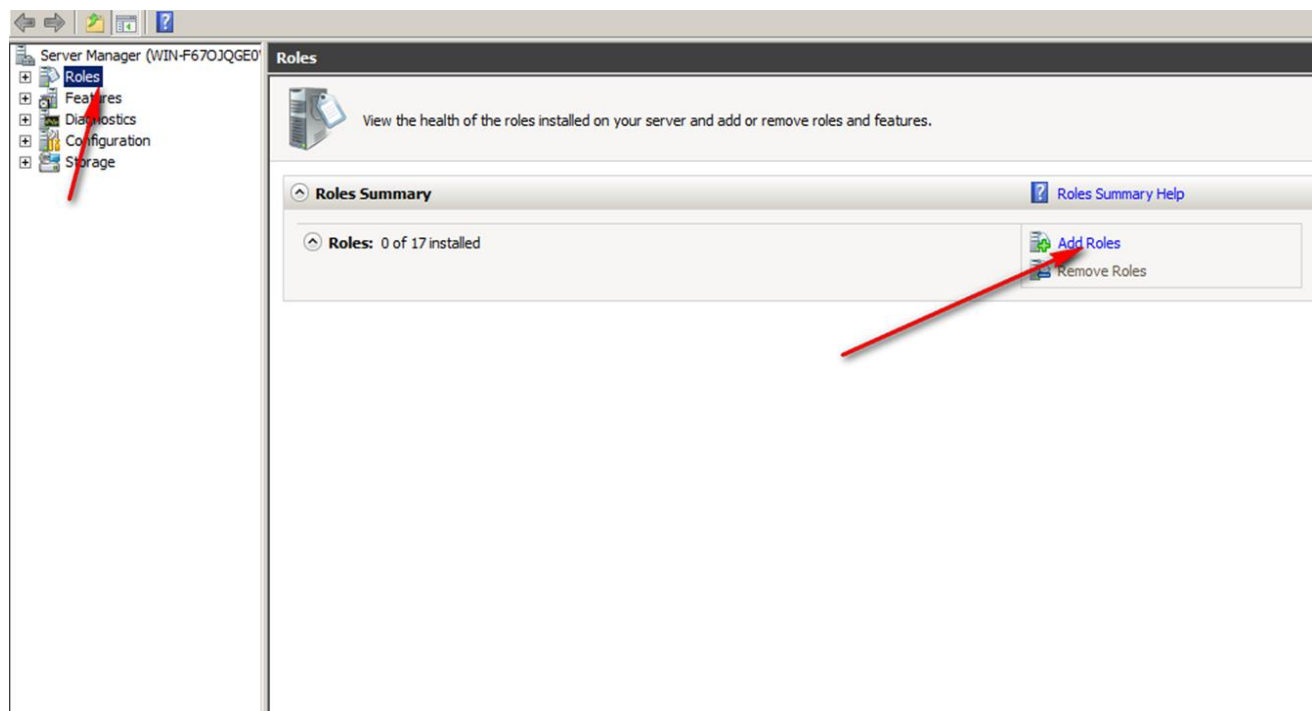
كم هو معلوم بأن Router لا يقوم بتمرير broadcast وهذا سوف يجبرنا على وضع سيرفر DHCP في كل شبكة وطبعاً هذا شيء غير مرغوب به لما له من مصاريف زائدة بالإضافة إلى الوقت الضائع الذي سوف نقضي في متابعة إداء وعمل كل سيرفر لذا قامت سيسكو أولاً بعمل خاصية تدعى IP-Helper والتي تسمح router بتمرير طلبات الـ DHCP التي تكون على شكل broadcast إلى السيرفر مباشرة وطبعاً هذه الخاصية متاحة فقط على أجهزة سيسكو وفي حقيقة الأمر سيسكو قامت أساساً بتطوير الخاصية القديمة وهي التي نتحدث عنها اليوم DHCP Relay Agent والتي تقوم بنفس العملية تماماً وهي نقل broadcast من شبكة إلى شبكة أخرى وهي متاحة على كل أنواع أجهزة الشبكة .

A DHCP relay agent is any host that forwards DHCP packets between clients and servers. Relay agents are used to forward requests and replies between clients and servers when they are not on the same physical subnet. Relay agent forwarding is distinct from the normal forwarding of an IP router, where IP datagrams are switched between networks somewhat transparently. By contrast, relay agents receive DHCP messages and then generate a new DHCP message to send out on another interface. The relay agent sets the gateway IP address (giaddr field of the DHCP packet) and, if configured, adds the relay agent information option (option82) in the packet and forwards it to the DHCP server. The reply from the server is forwarded back to the client after removing option 82.

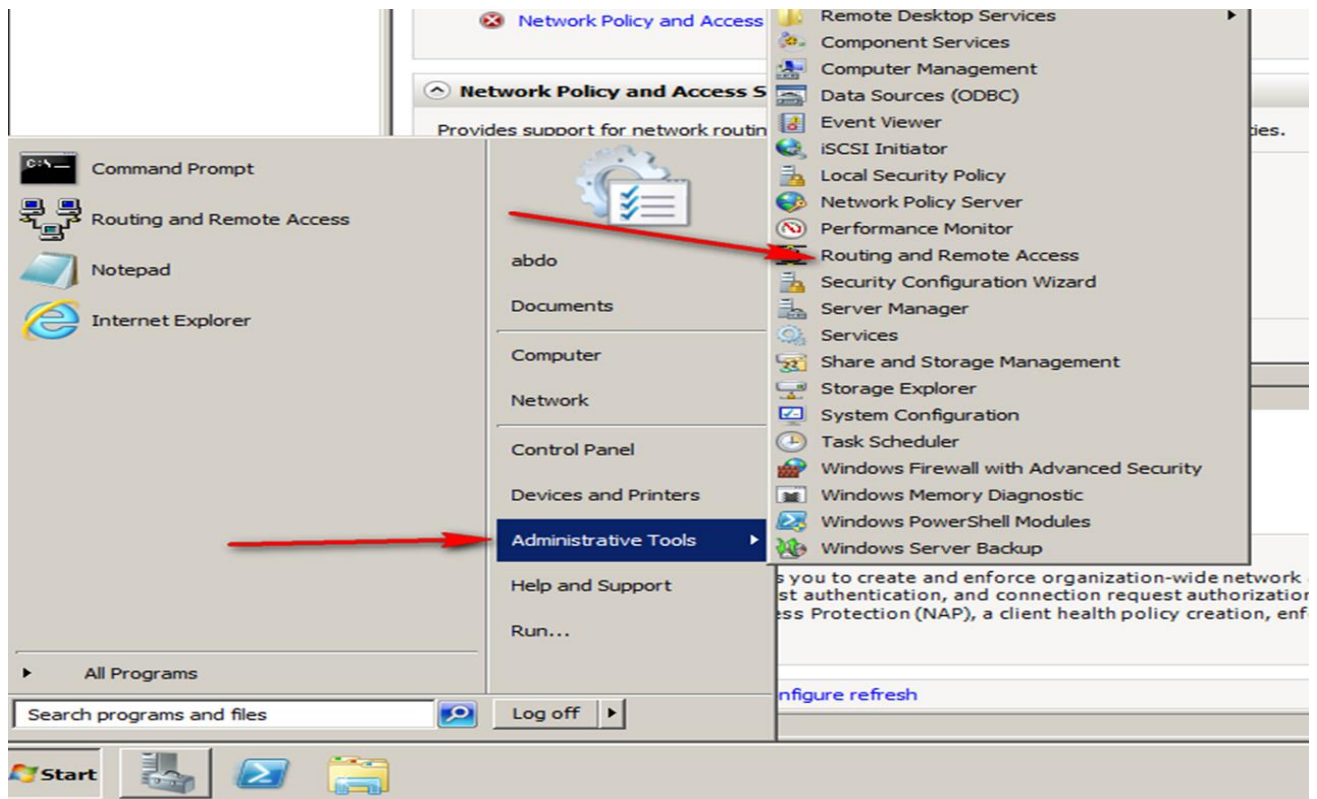


9.1-DHCP Relay Agent in windows server 2008

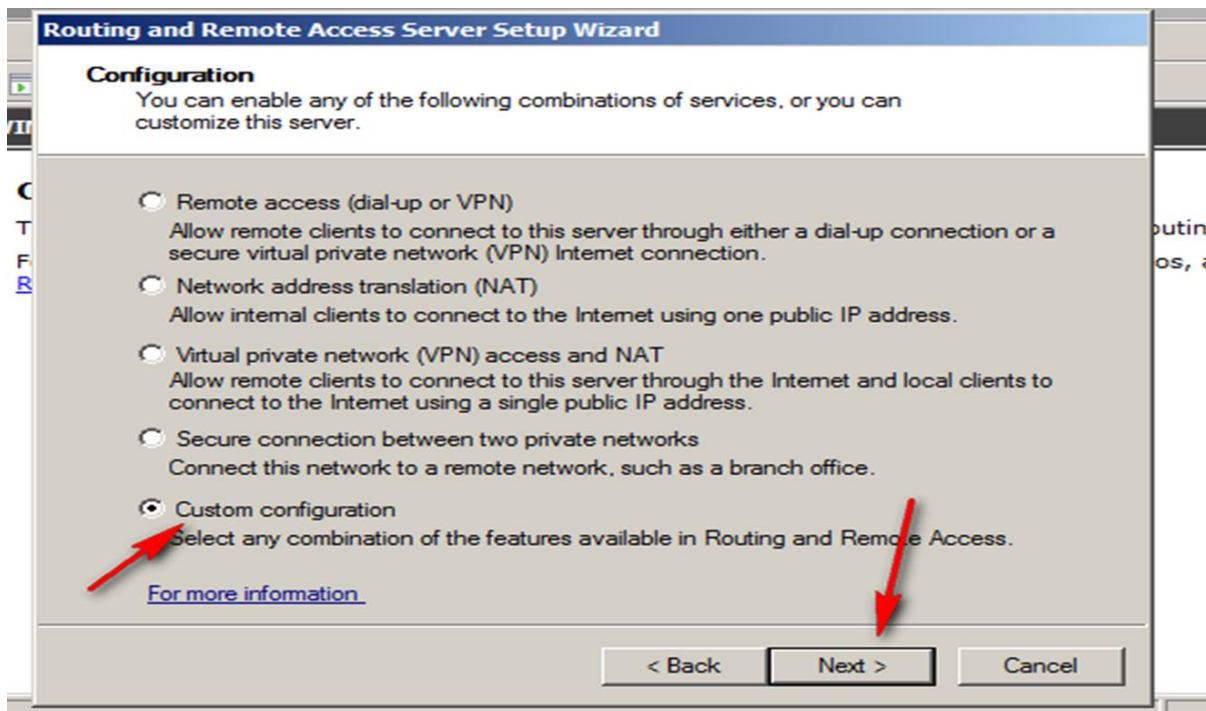




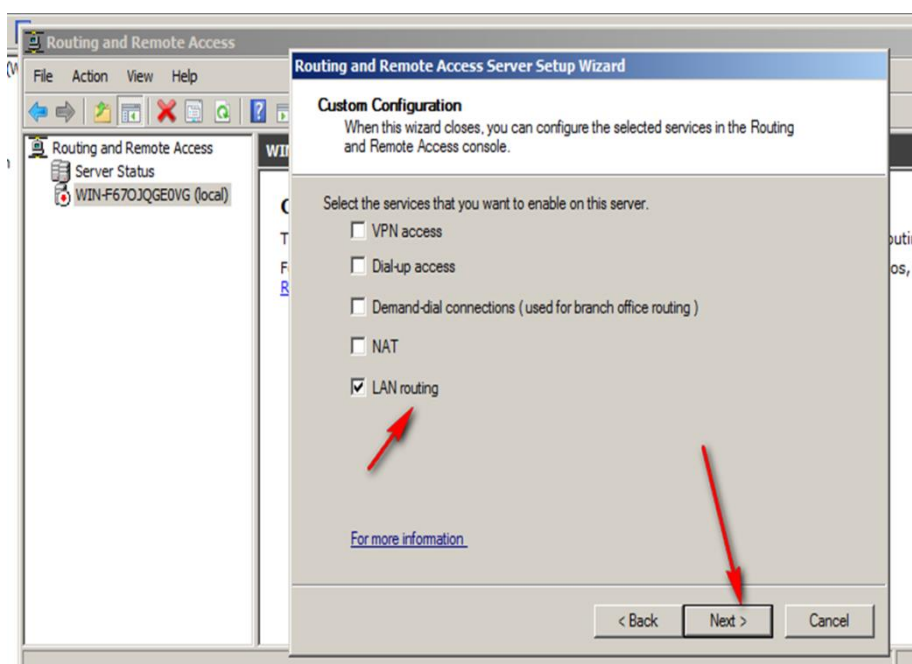
Open routing and remote access



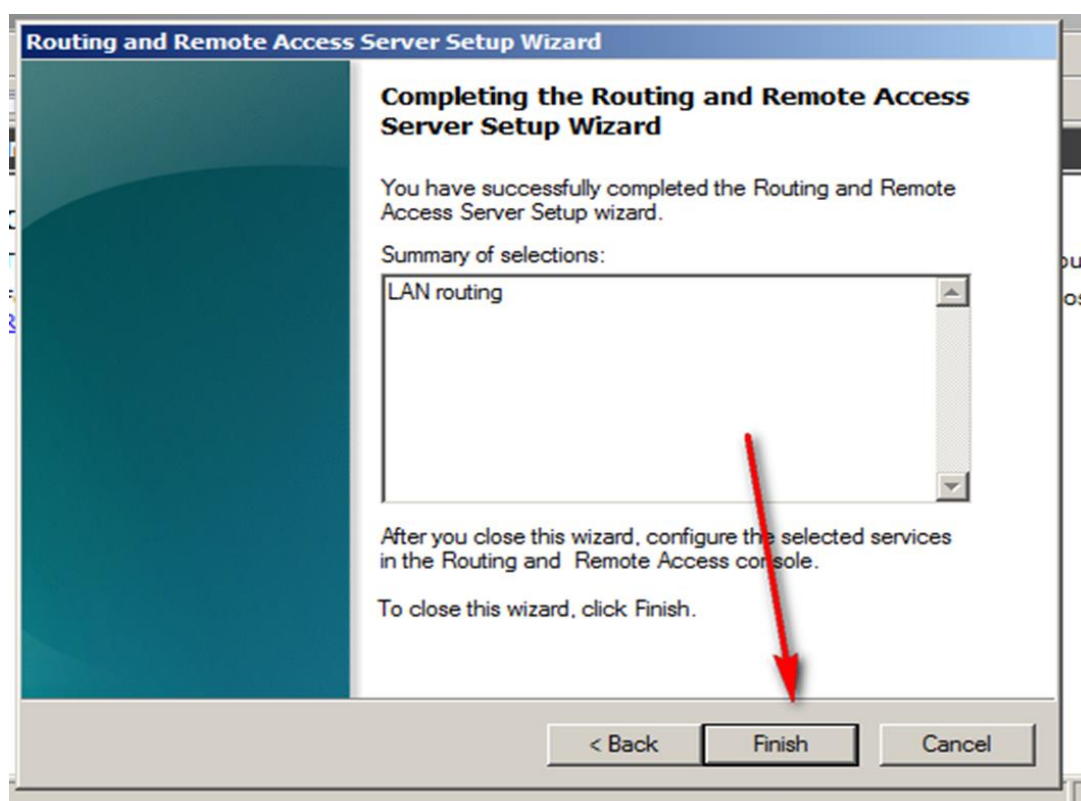
Choice custom configuration



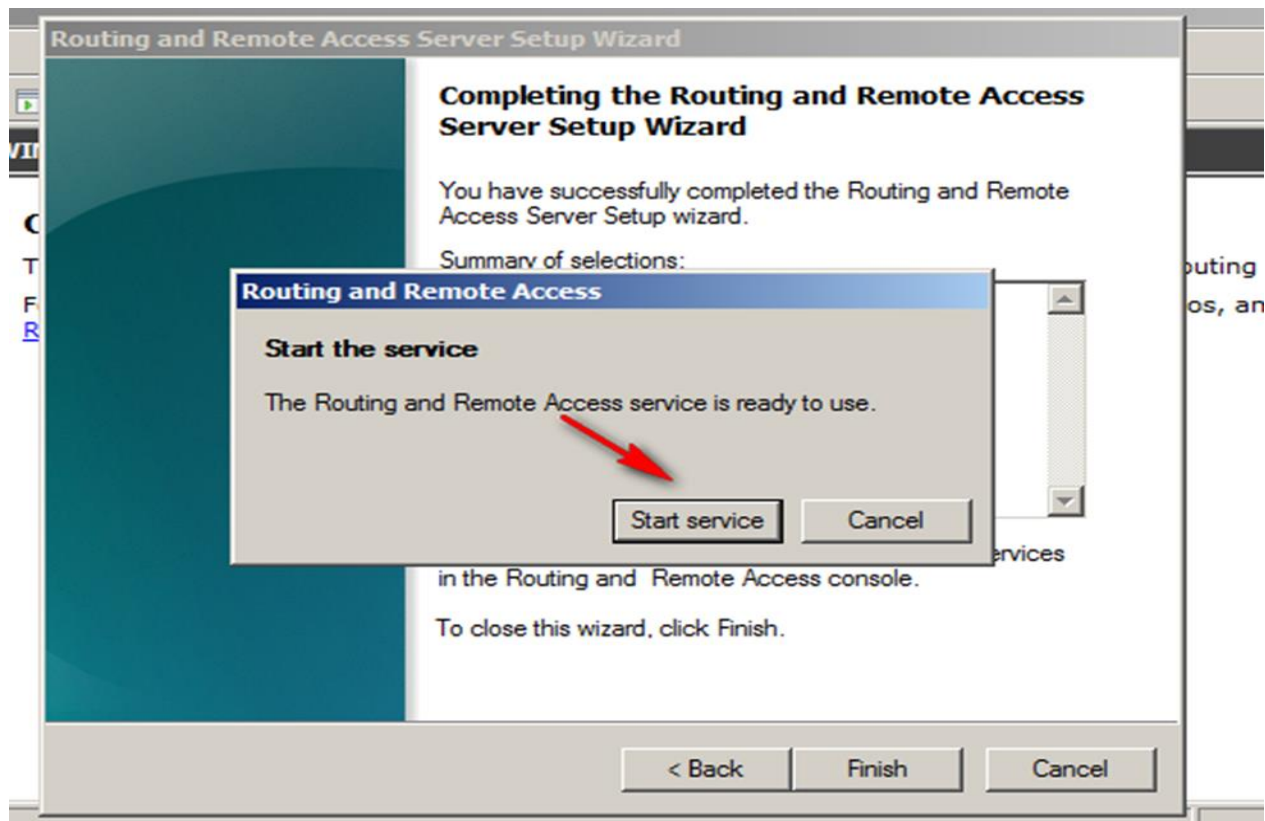
LAN routing



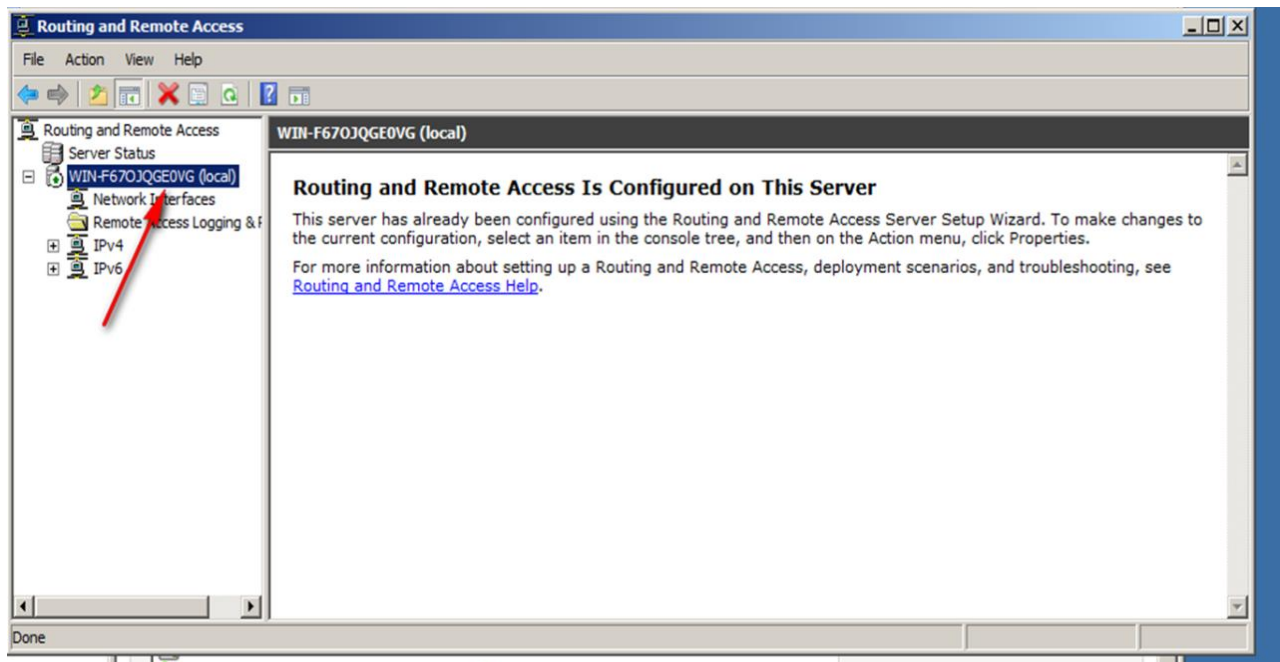
Press finish

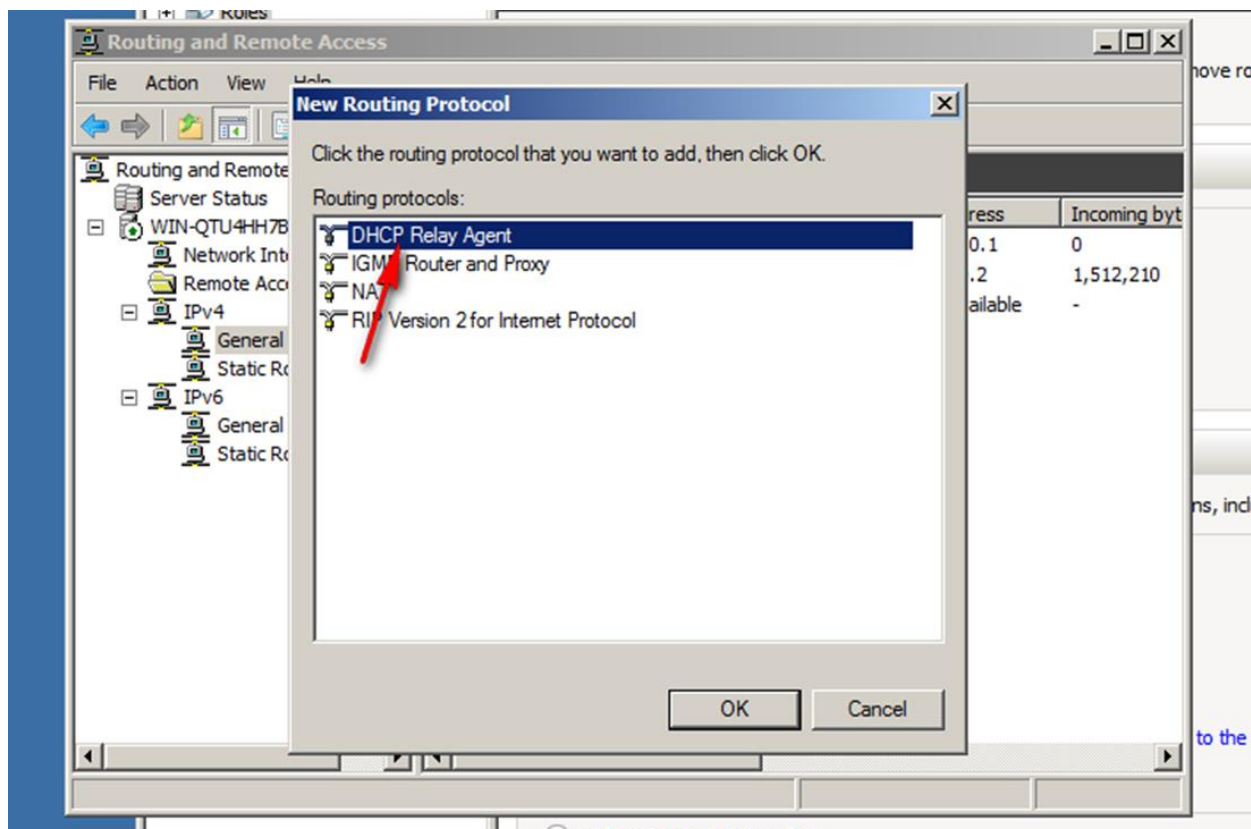
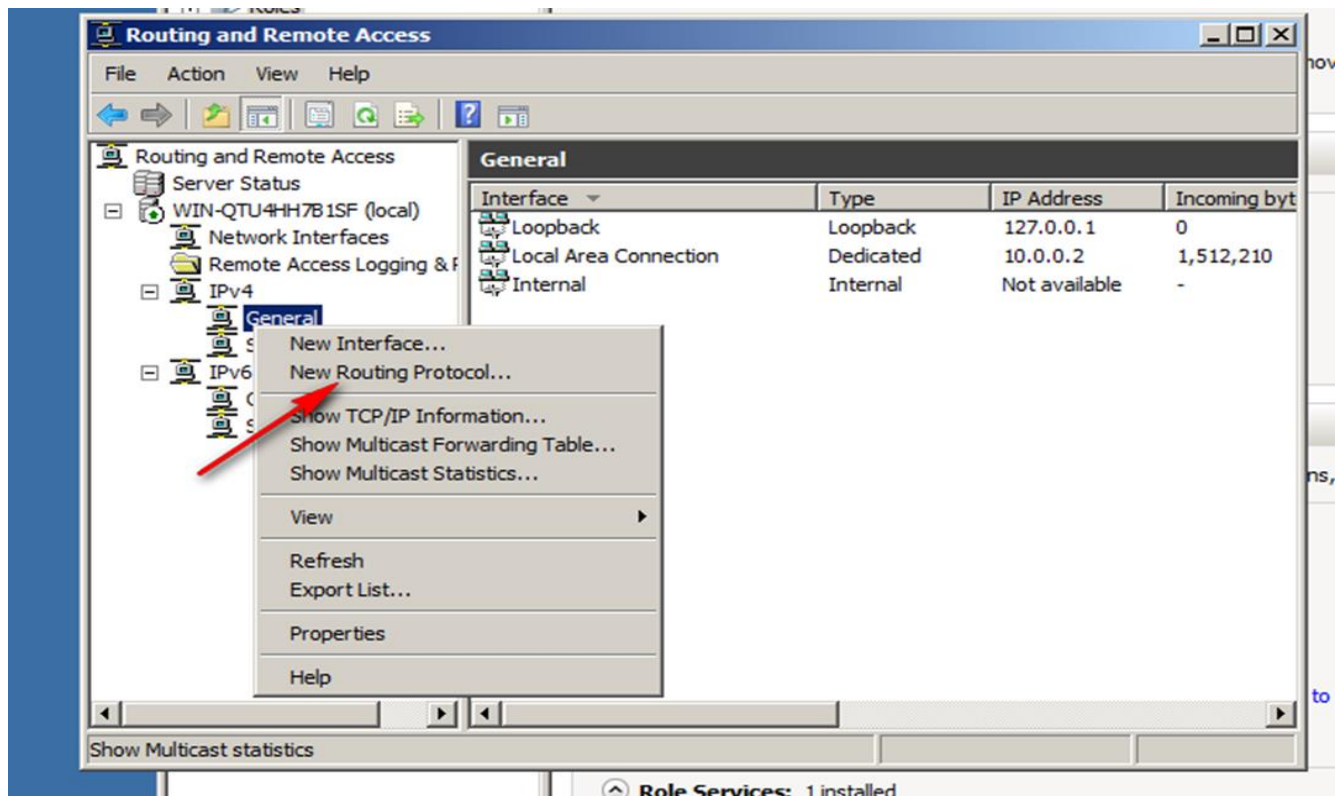


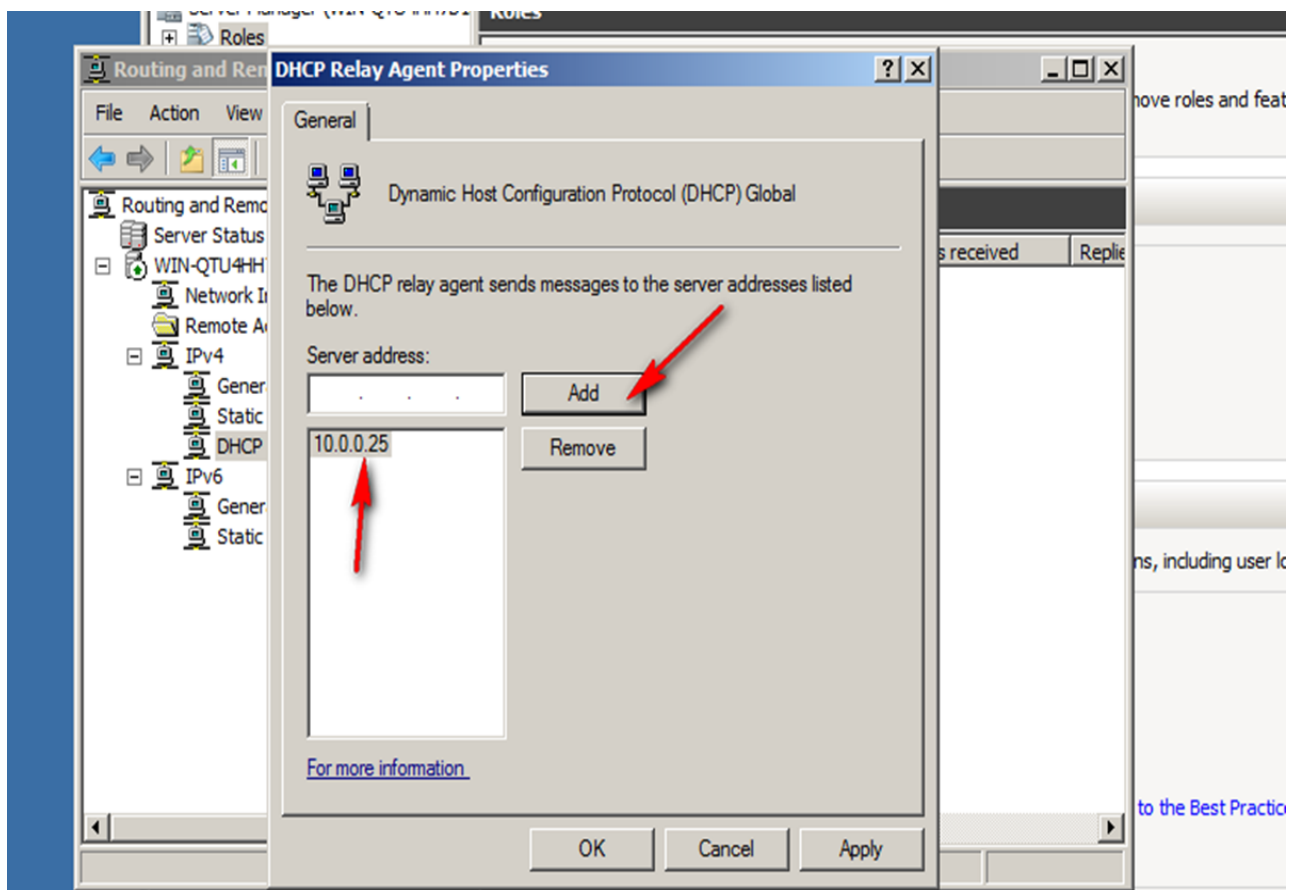
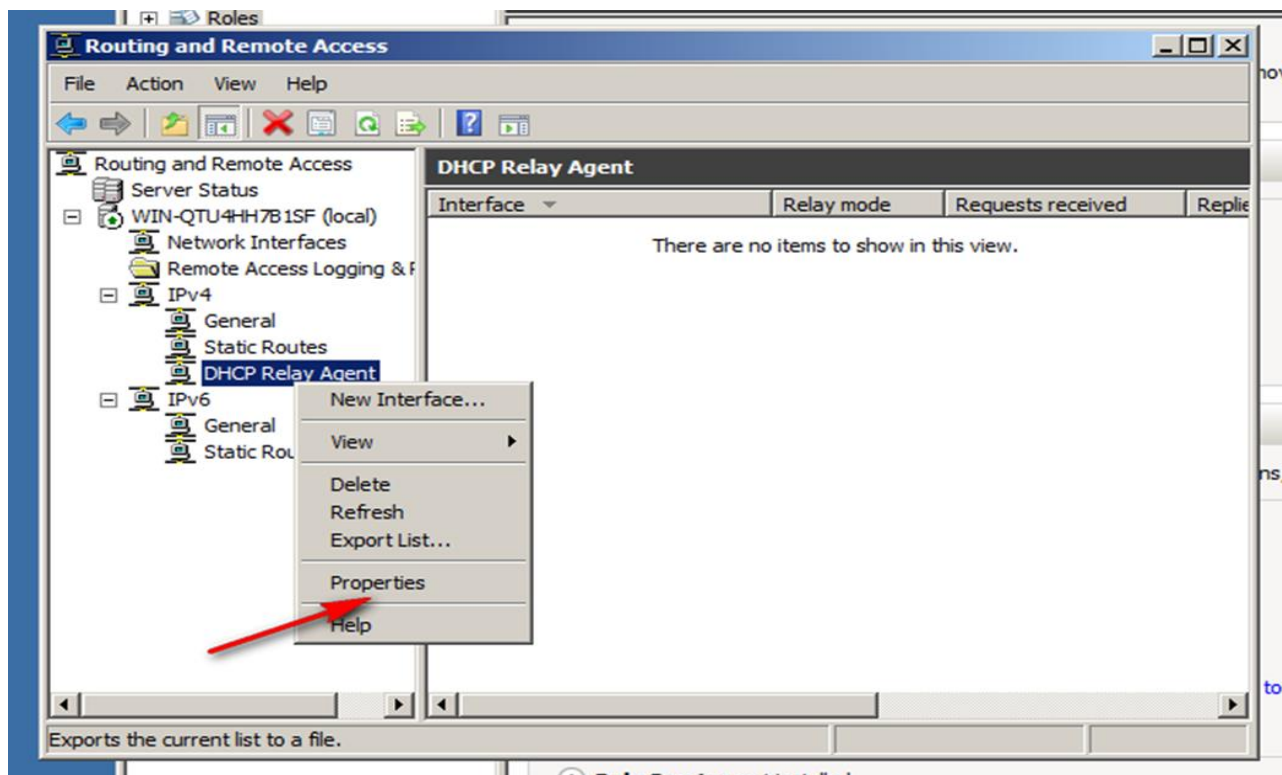
Start the services



Now server works as router

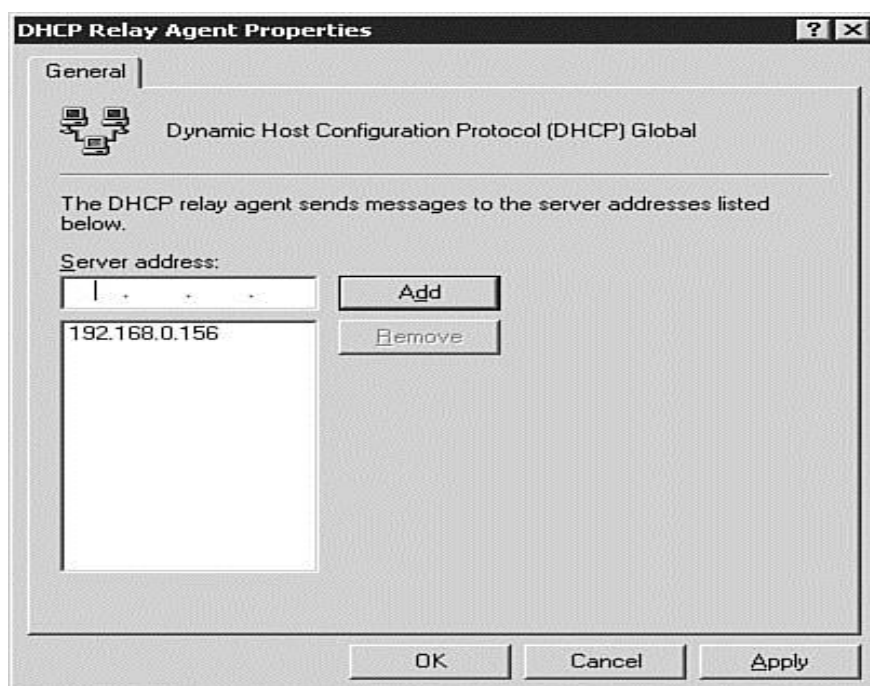
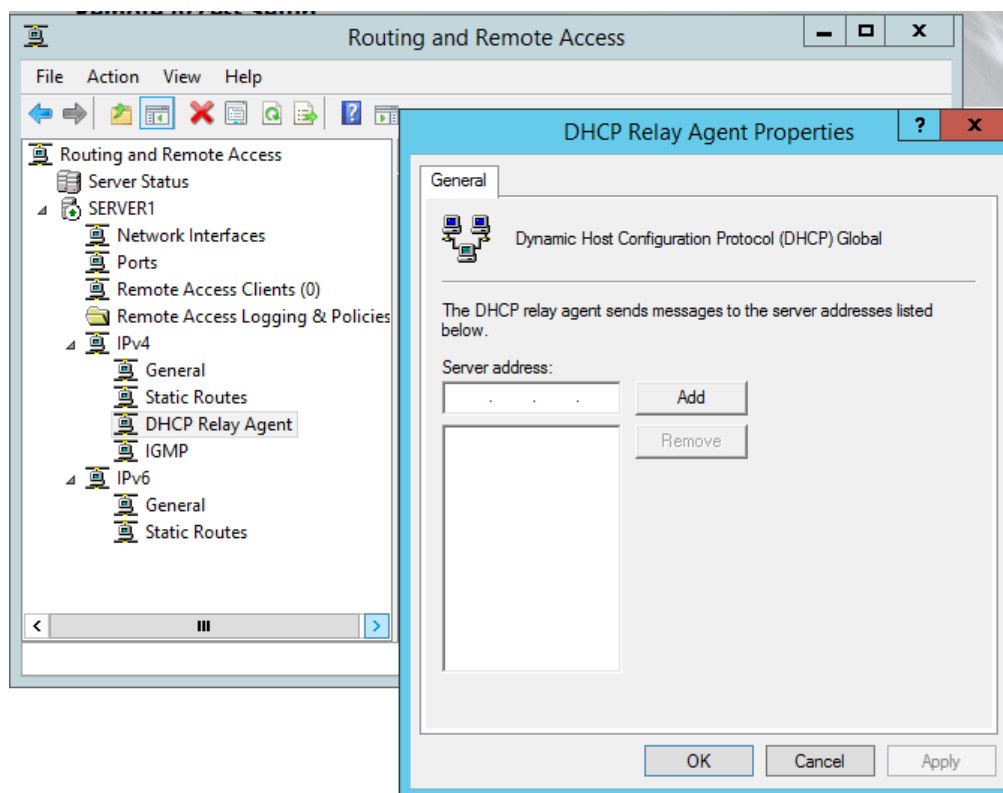






9.2- DHCP relay agent windows server 2012

Once done, Routing and Remote Access will open. Right click on DHCP Relay Agent and provide the DHCP Server Address



10-Make server work as router

احيانا لا يوجد لدينا روتر داخل الشبكة فنحتاج الى جعل الخادم يعمل كراوتر ويقوم بجميع الوظائف الذي يقوم بها علي سبيل المثال ربط شبكات مختلفة.

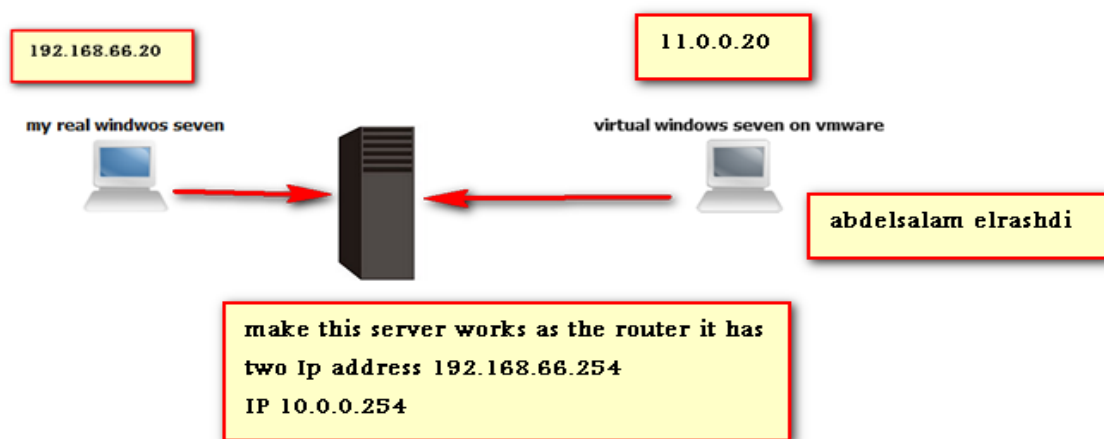
A router is a device that manages the flow of data between network segments, or subnets. A router directs incoming and outgoing packets based on the information it holds about the state of its own network interfaces and a list of possible sources and destinations for network traffic.

Remote access

By configuring Routing and Remote Access to act as a remote access server, you can connect remote or mobile workers to your organization's networks. Remote users can work as if their computers are physically connected to the network.

سوف نقوم بعمل لاب صغير يوضح كيفية جعل الخادم يعمل كراوتر

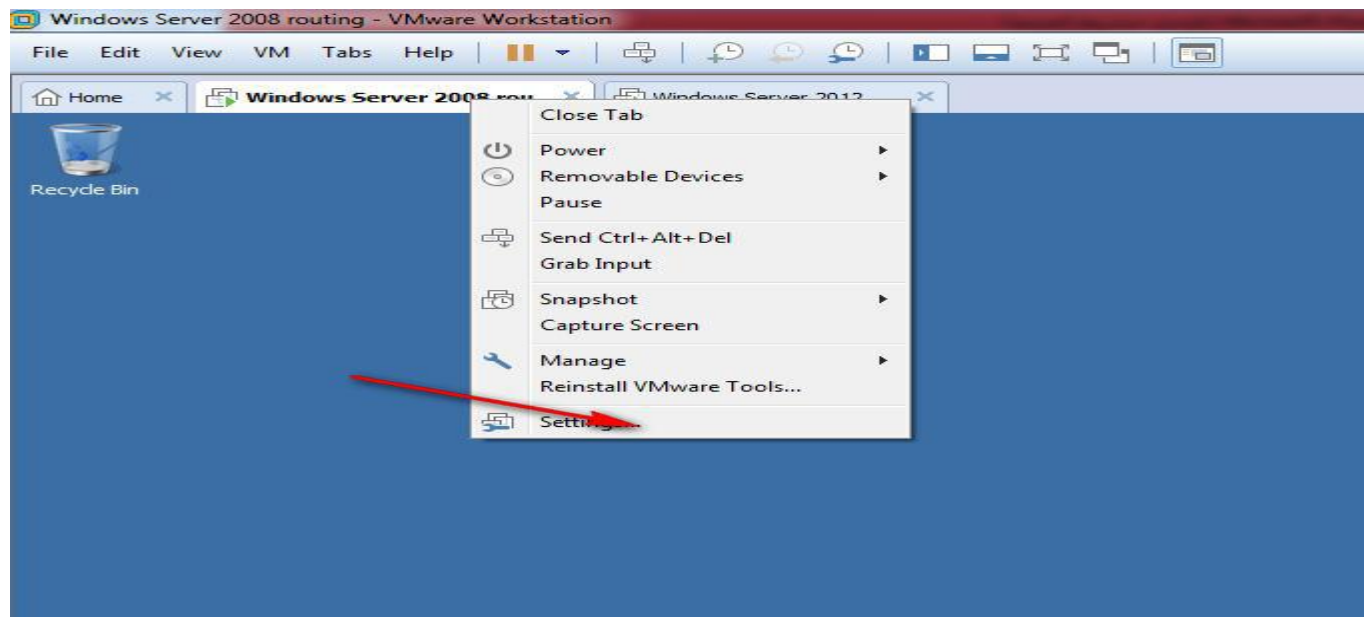
We made small Lab about routing in windows server, as following figure



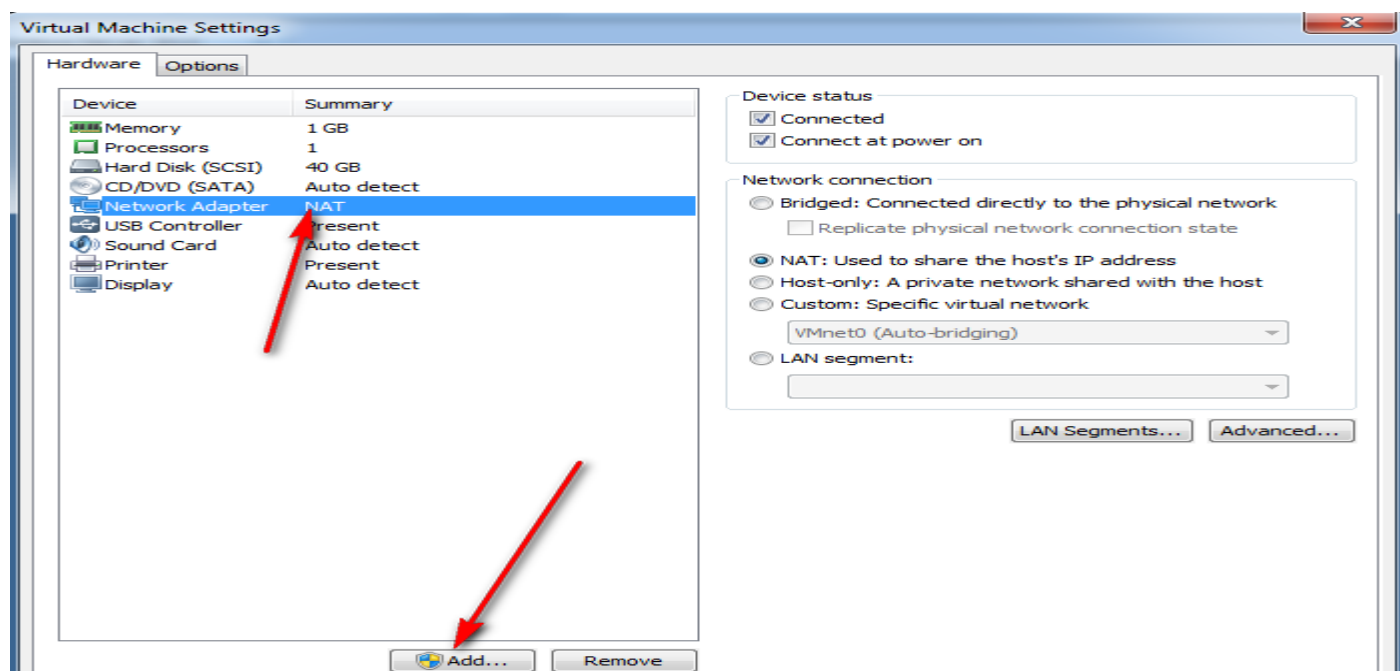
Where we have two differences network so we must have router or server works as router.

When you make server works as router On the windows server you must have at least two network interface

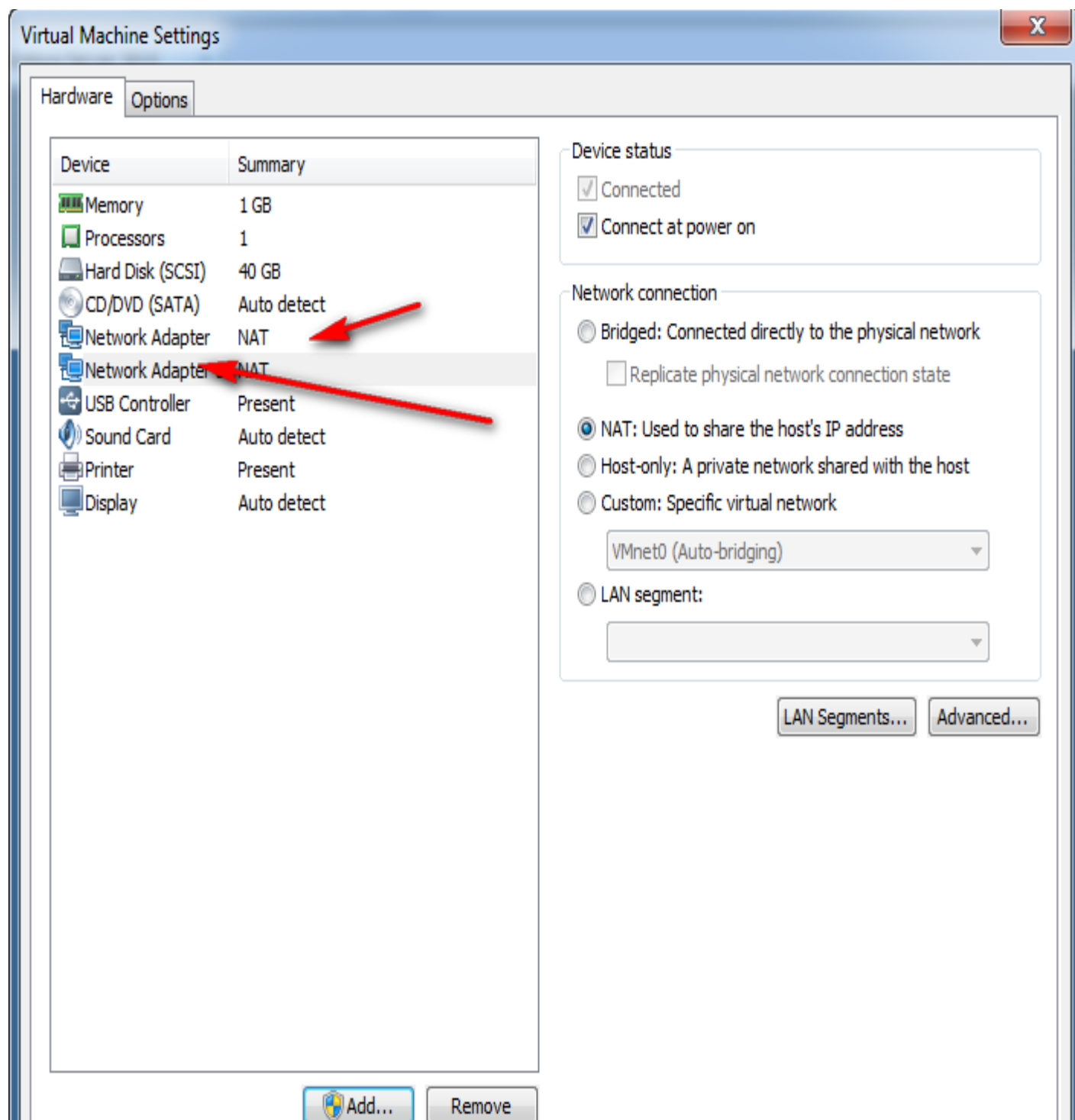
Add another interface card on vmware



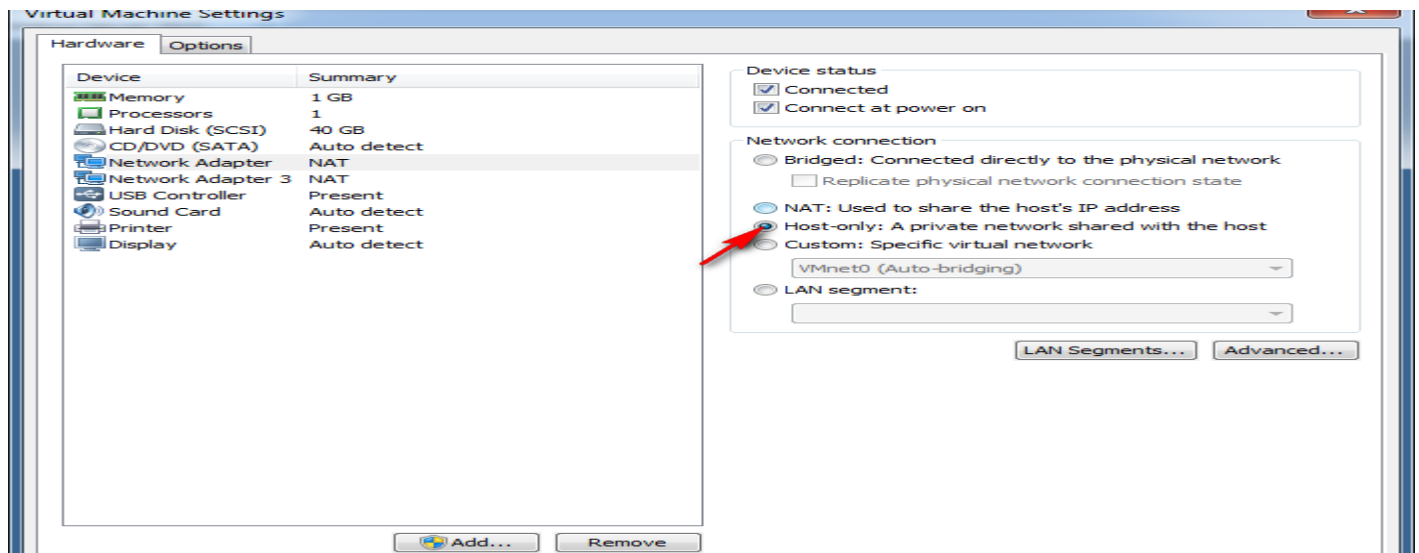
Network adapter then add



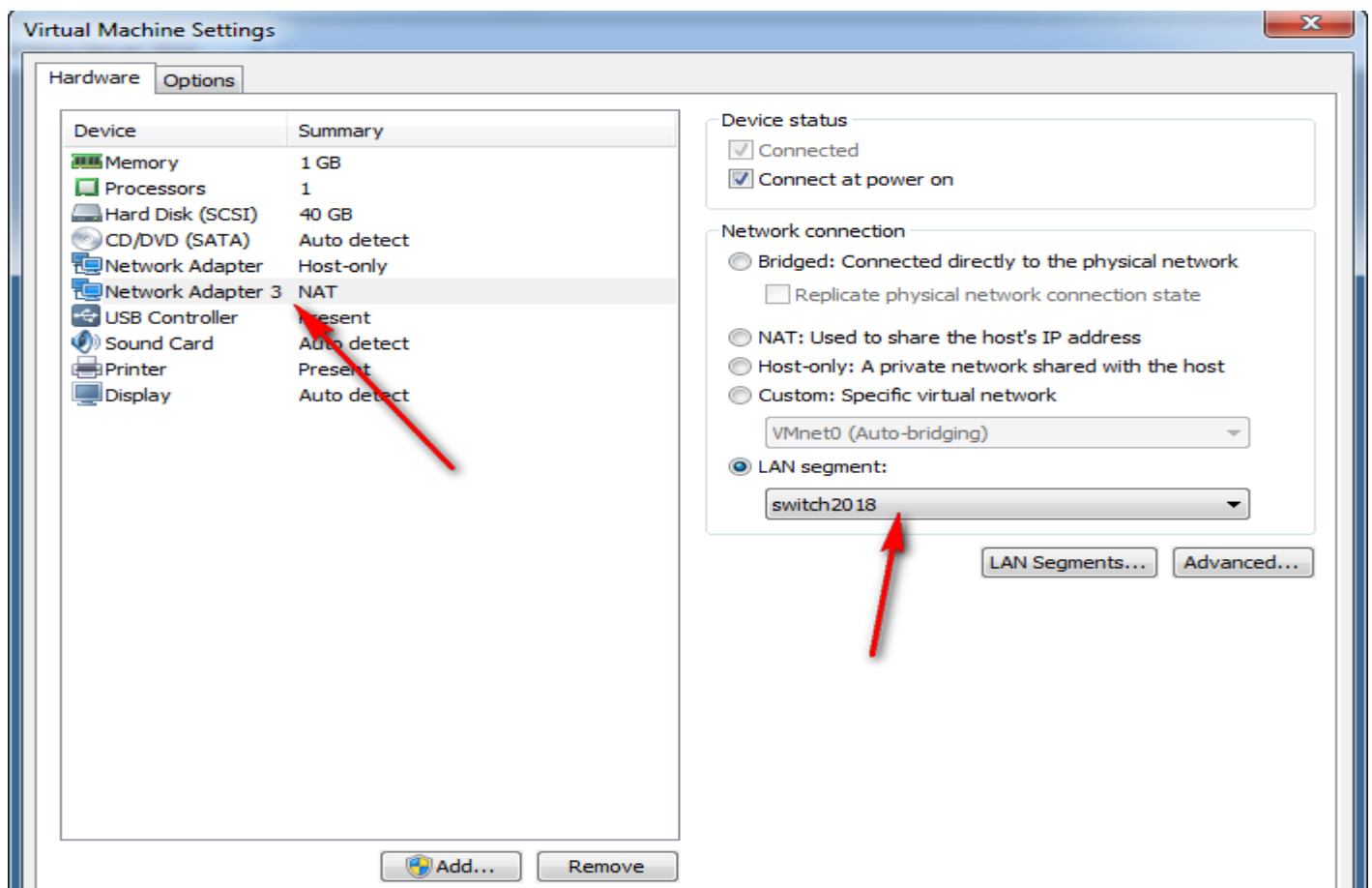
Now I have two NIC



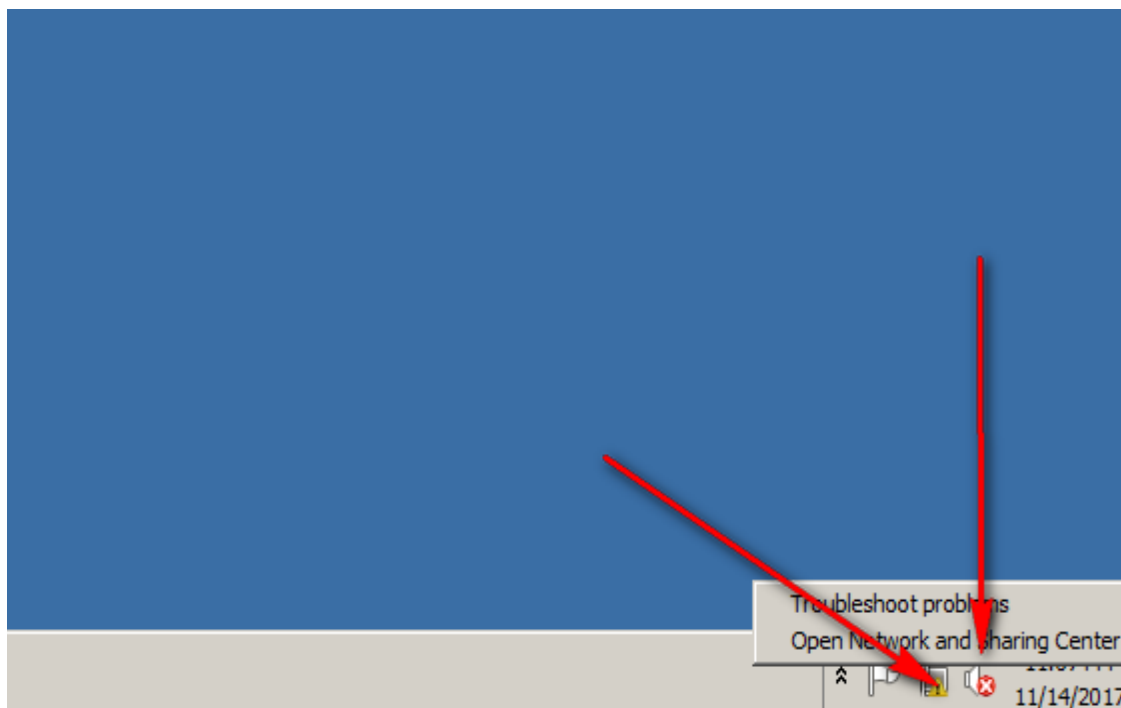
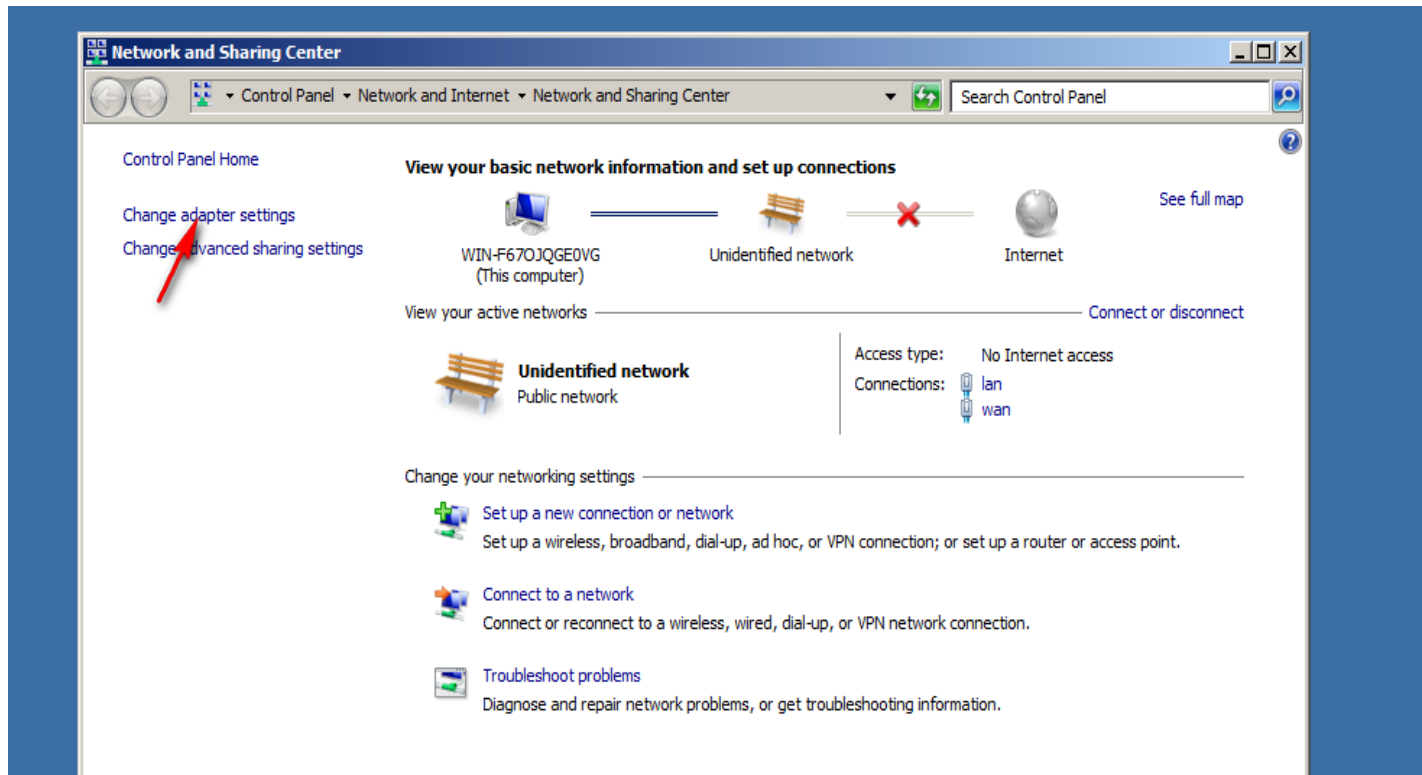
First NIC will connect with real my computer so we will choice host-only



Second NIC will connect with virtual machine windows seven so we will create ne switch named switch2018

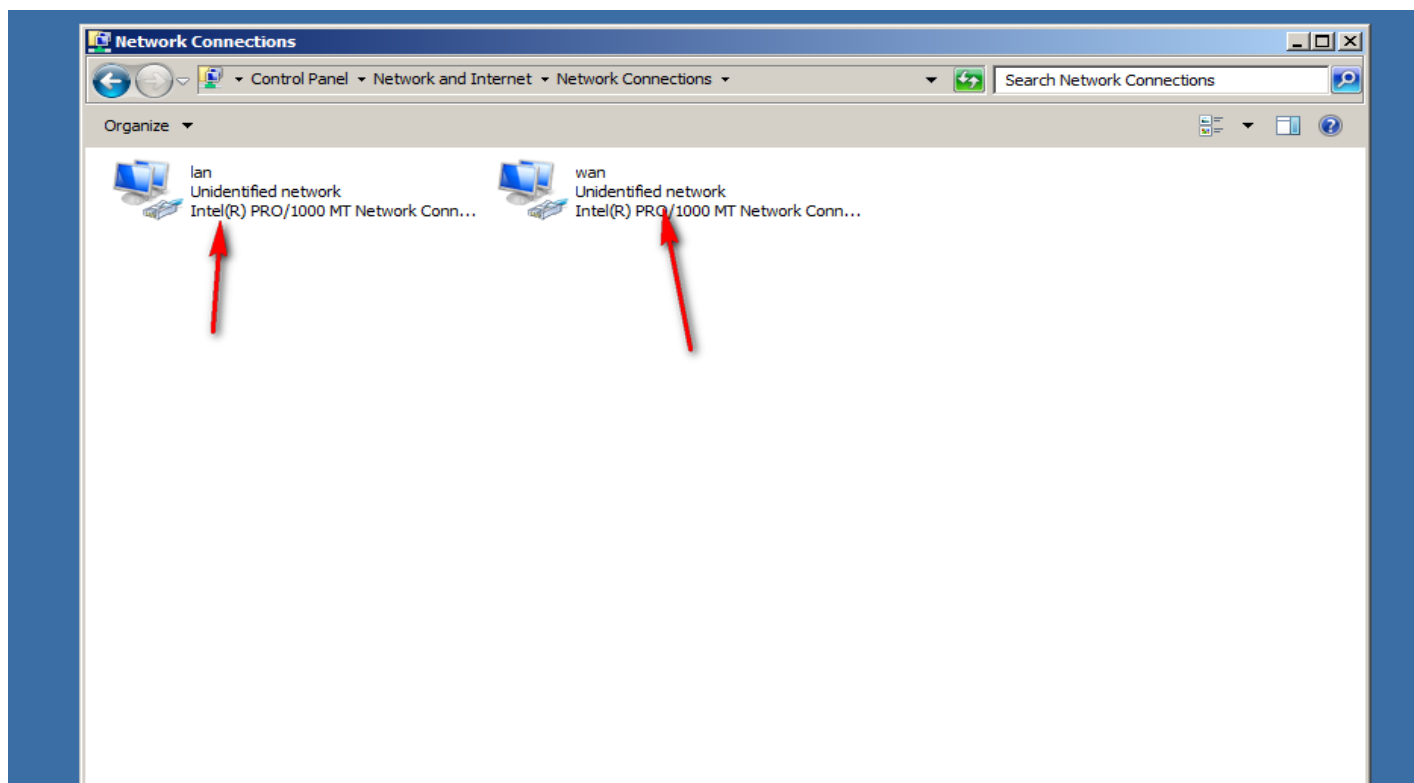


To open the network interfaces

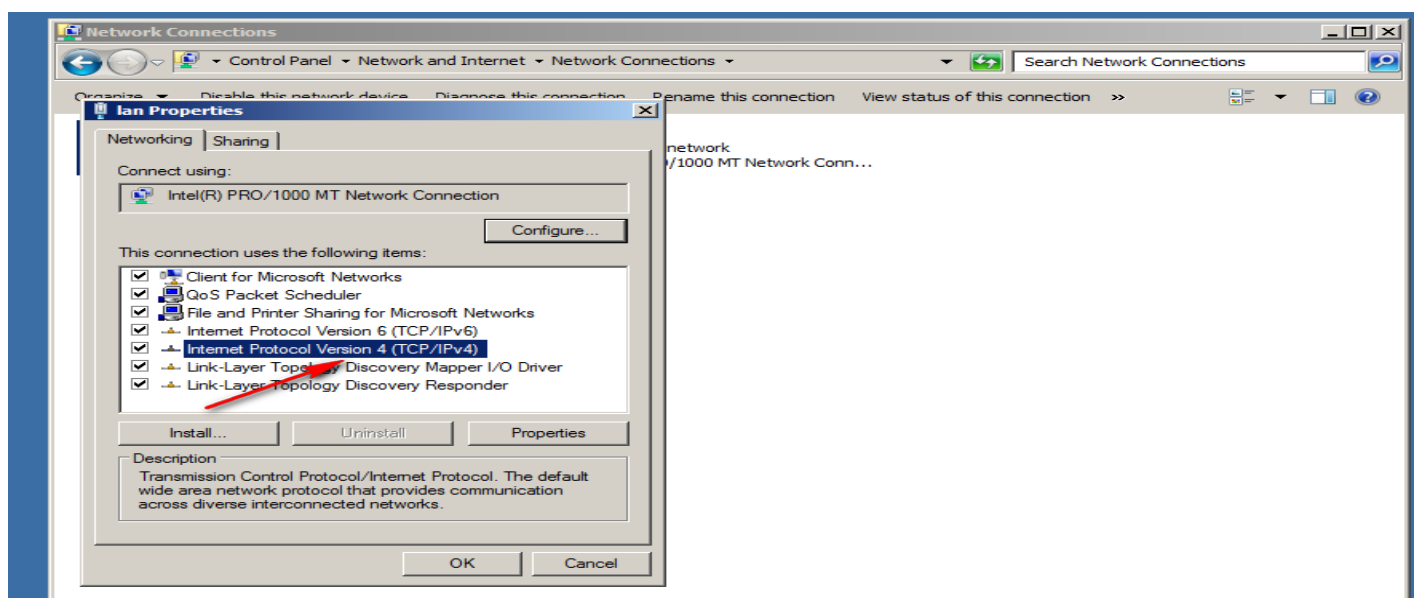


Choice adapter settings

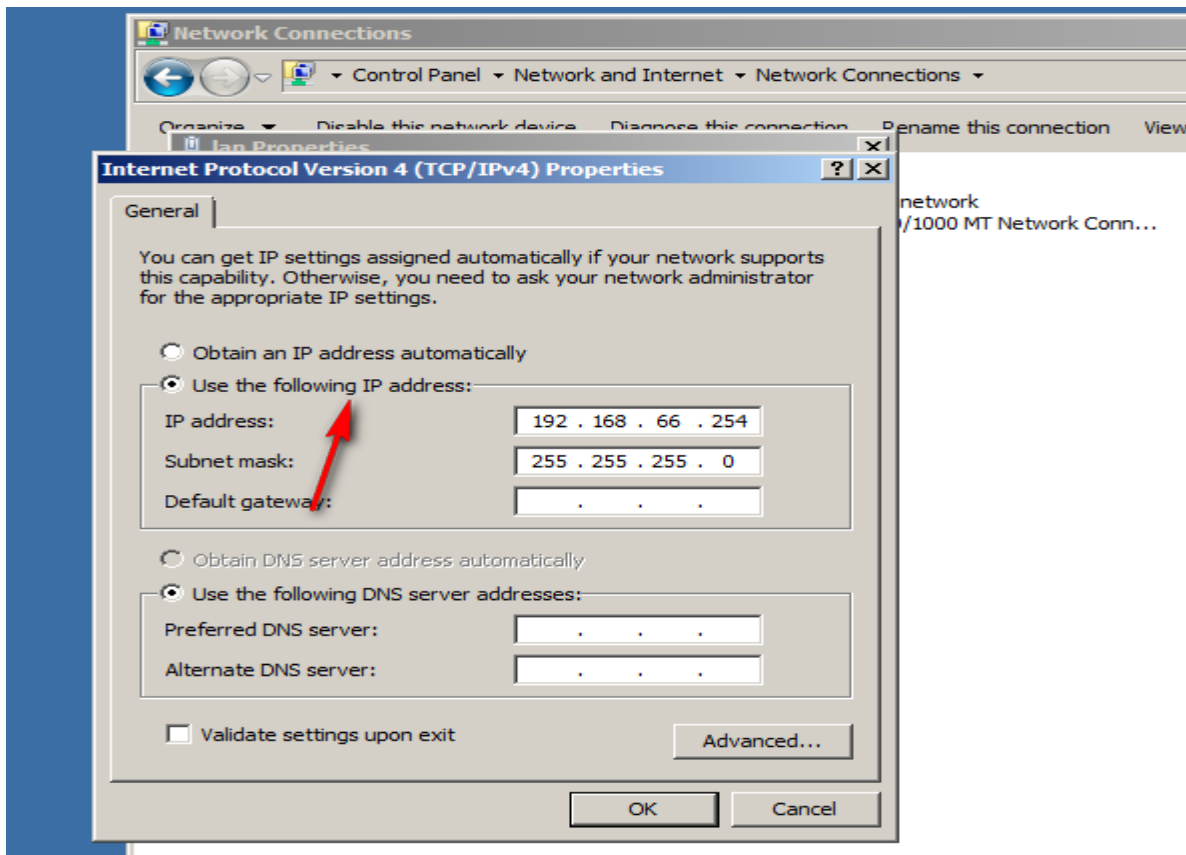
I have two NIC can I rename them for example LAN ,WAN



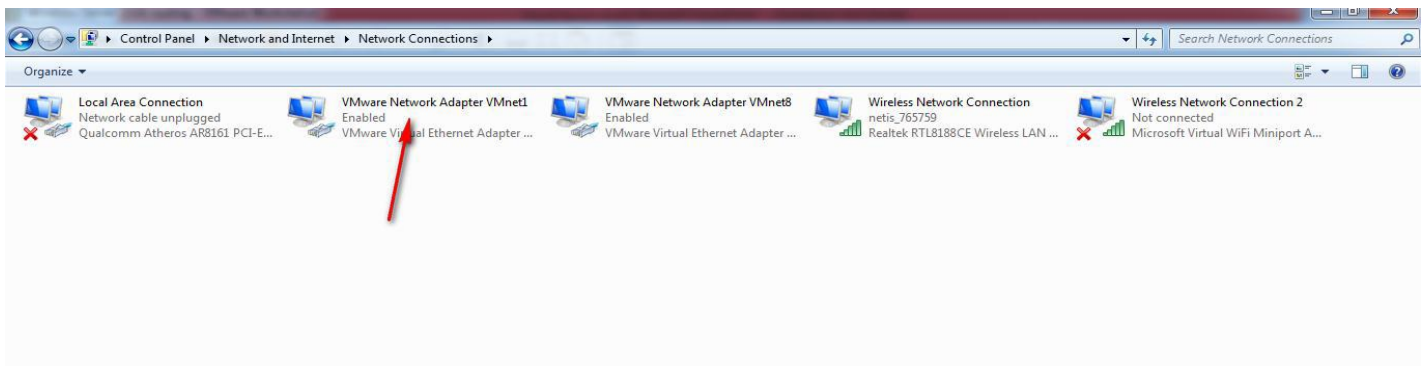
Now IP address to LAN interface that connect with real my computer through host-only connection



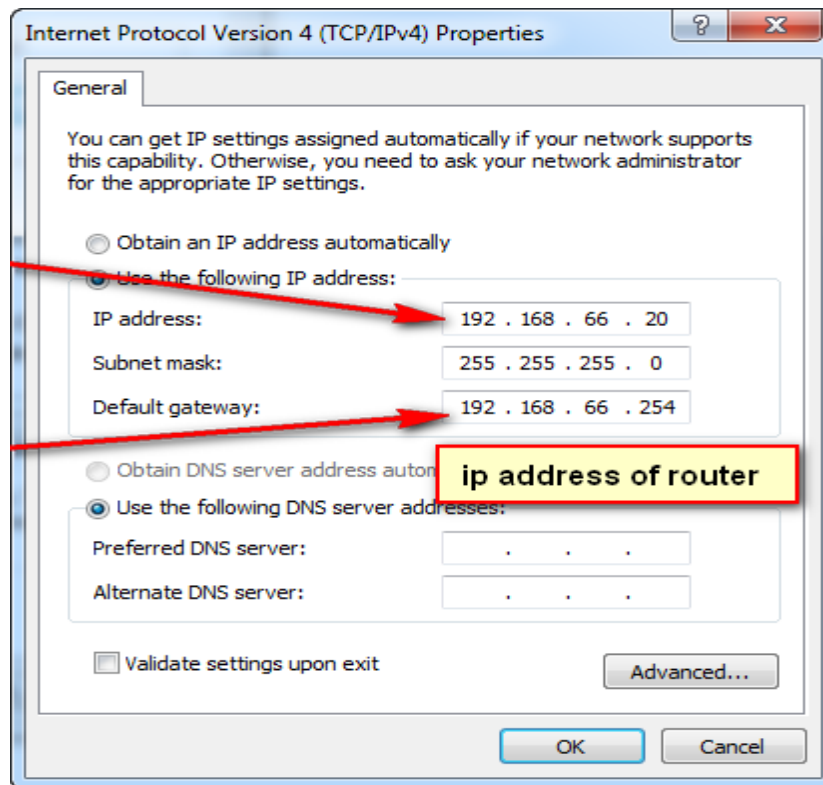
IP address for LAN interface on server (router)



Now on my real computer go to vmnet1 (host-only) ,put Ip address same network as LAN interface on router



Ip address and default gateway on my real computer



Now ping on IP address of LAN interface on router

```
Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

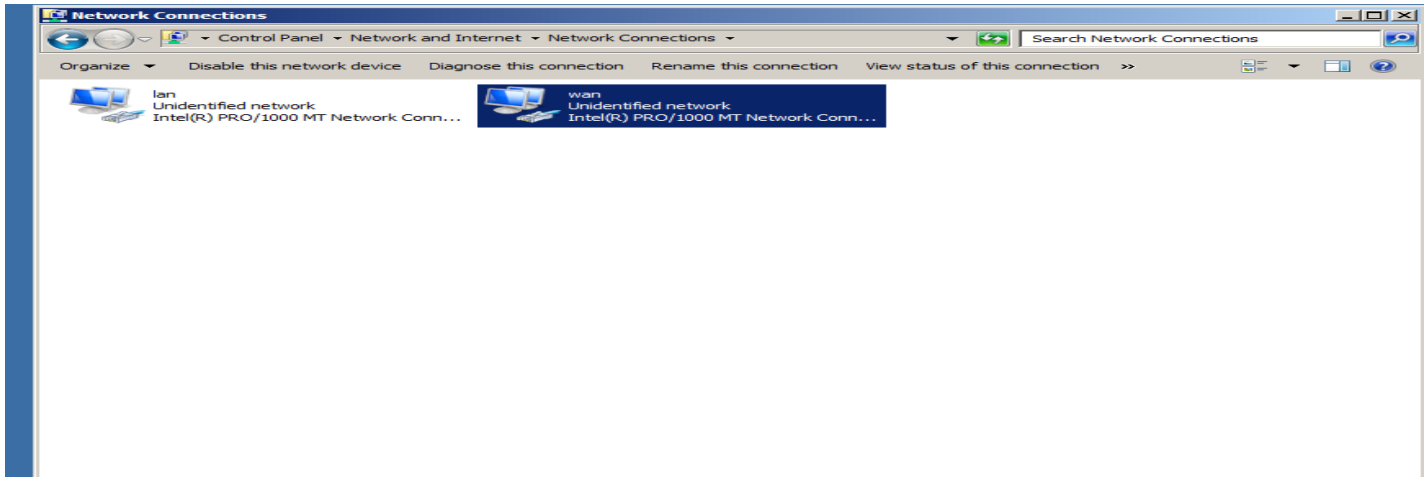
C:\Users\abdo>ping 192.168.66.254

Pinging 192.168.66.254 with 32 bytes of data:
Reply from 192.168.66.254: bytes=32 time=1ms TTL=128
Reply from 192.168.66.254: bytes=32 time<1ms TTL=128
Reply from 192.168.66.254: bytes=32 time<1ms TTL=128
Reply from 192.168.66.254: bytes=32 time<1ms TTL=128

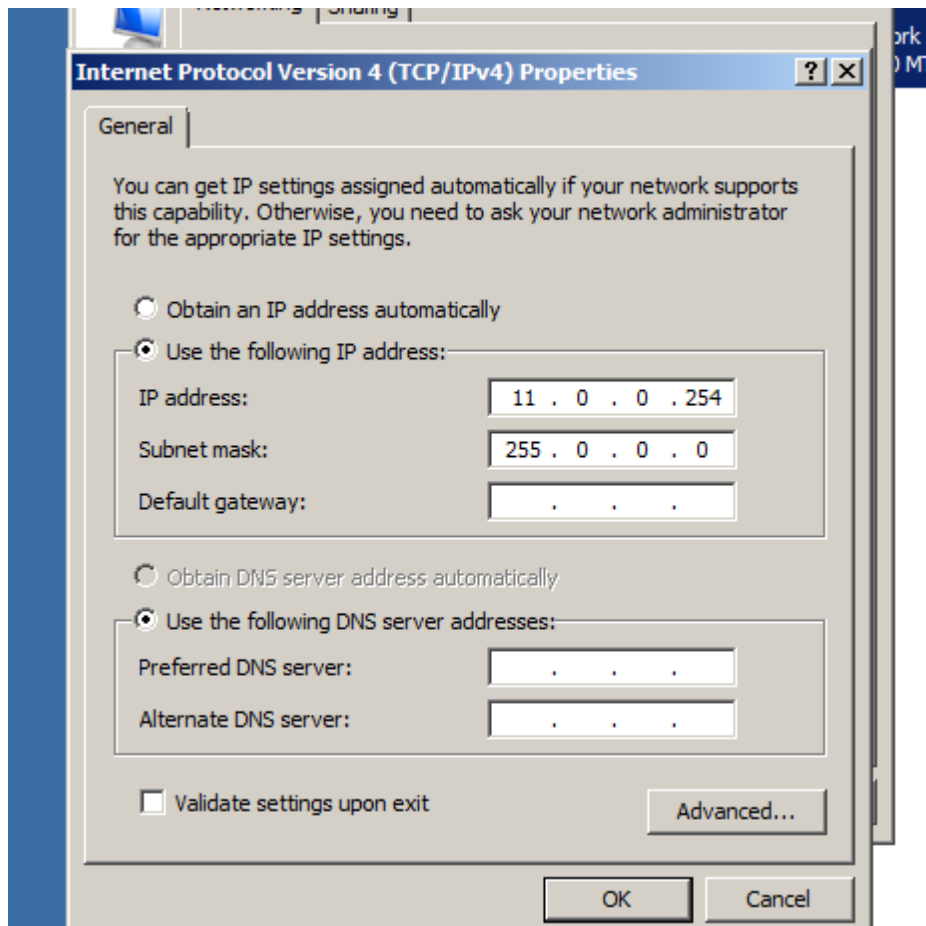
Ping statistics for 192.168.66.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Users\abdo>
```

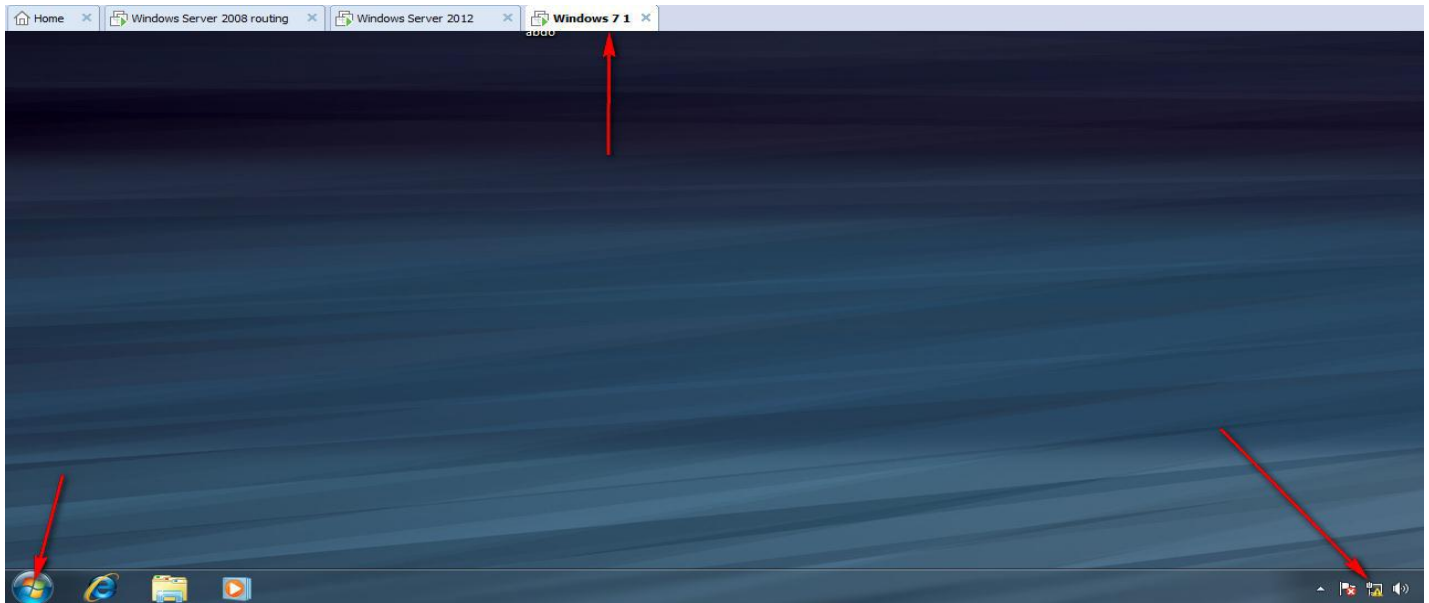
Now IP address to wan interface that connect with virtual machine (seven) through switch2018 connection



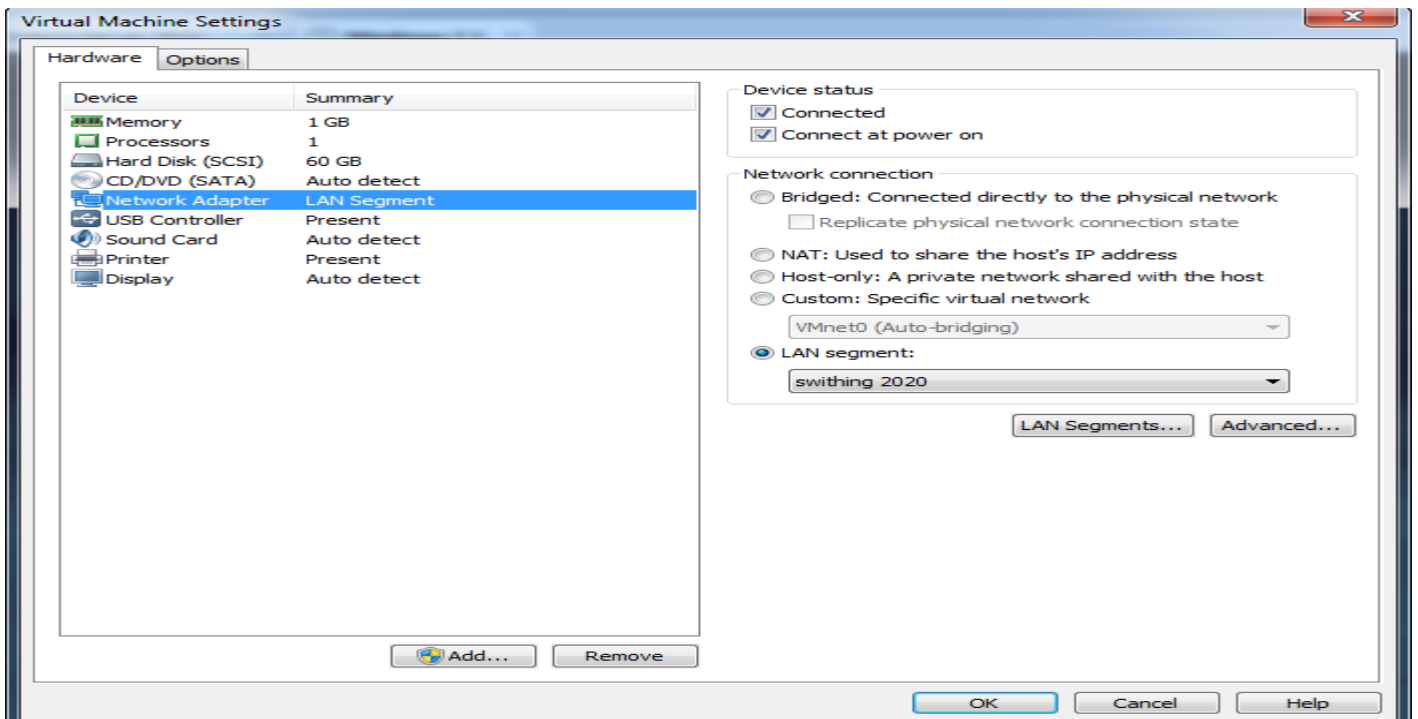
IP address for wan interface on server (router)



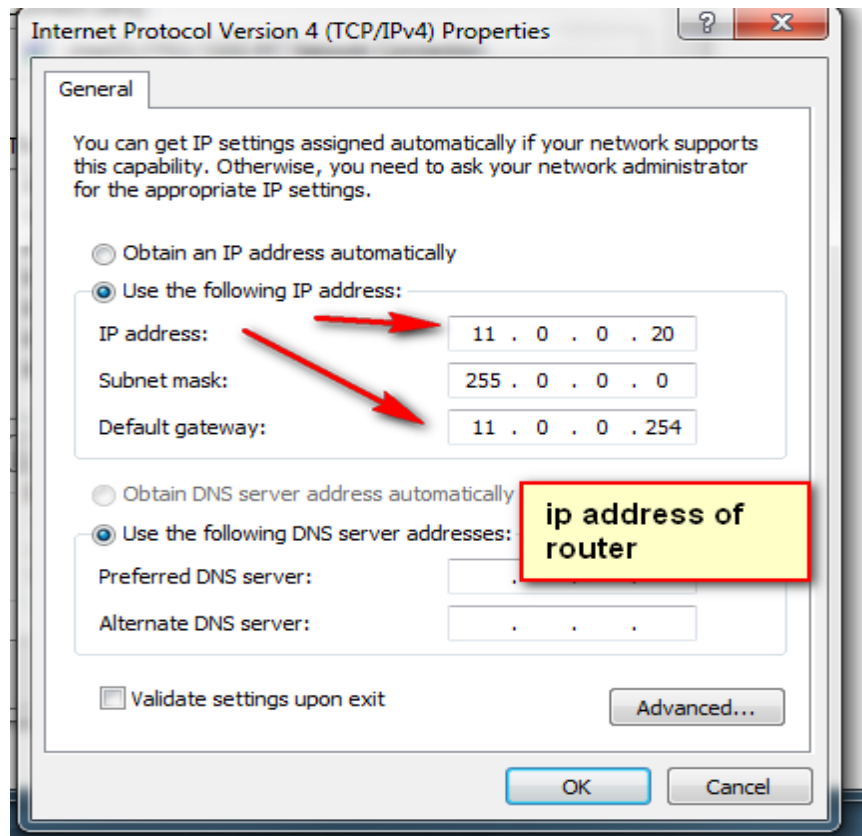
On virtual machine make interface connect with switch2008 connector



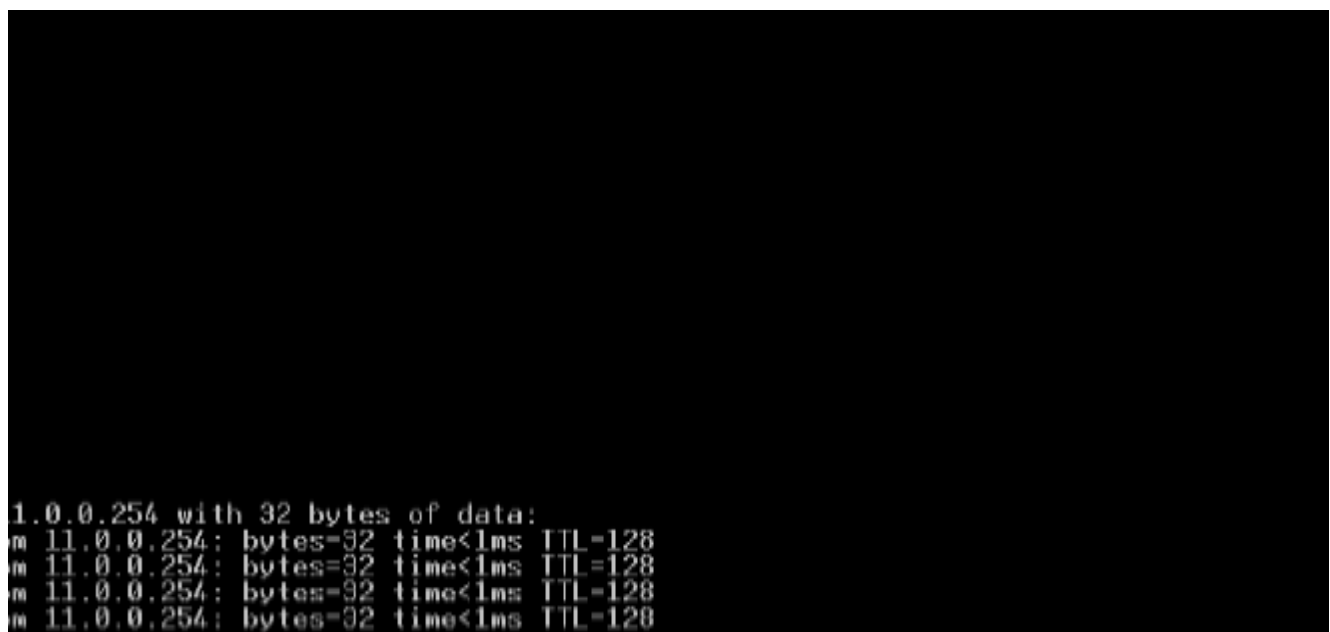
On virtual machine make interface connect with switch2008 connector



On virtual machine put IP address and default gateway same network with wan interface on router



Now ping on IP address of wan interface on router



But if I want ping between my real computer and virtual machine I can't because we still make server works as router to connect different networks

```
ping 192.168.66.20
ping 192.168.66.20 with 32 bytes of data:
request timed out.
request timed out.
request timed out.
request timed out.
ping statistics for 192.168.66.20:
```

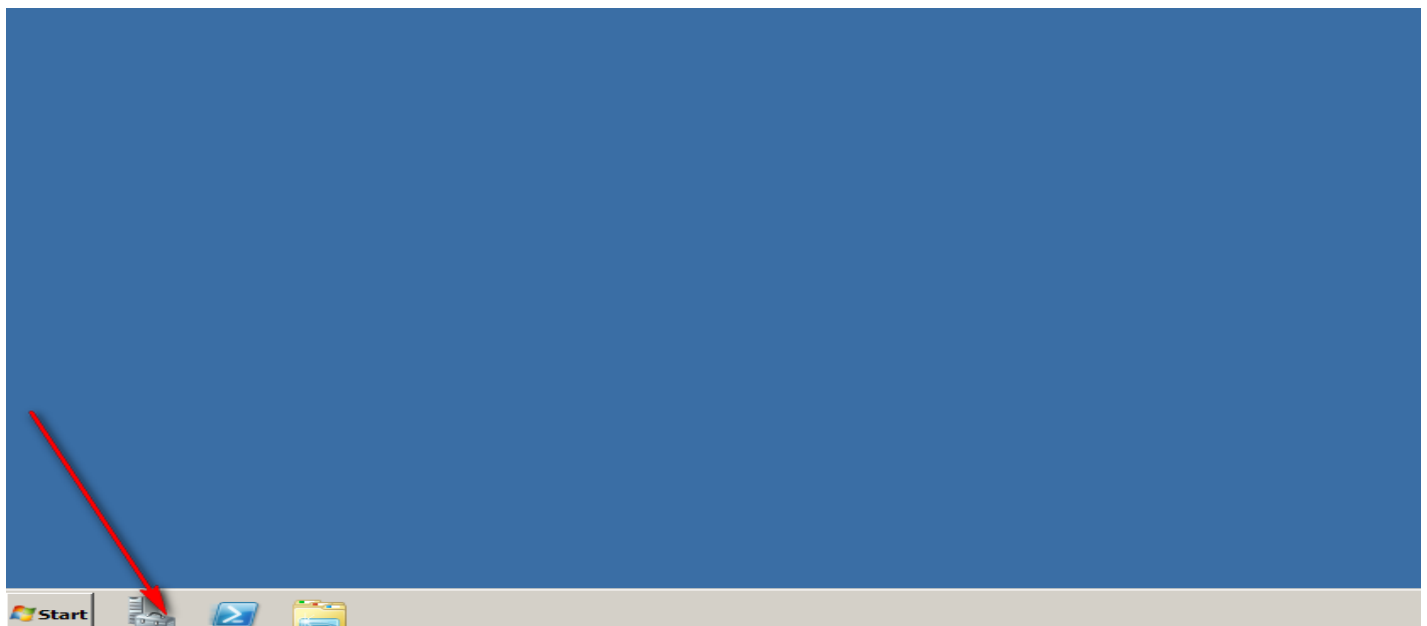
Now I will make Server as the router on windows server 2008 & 2012

When we want make server works as router we must on windows server 2008 install routing and remote access from server manager as and windows server 2012 install remote access role we will take both on windows server 2008 and 2012

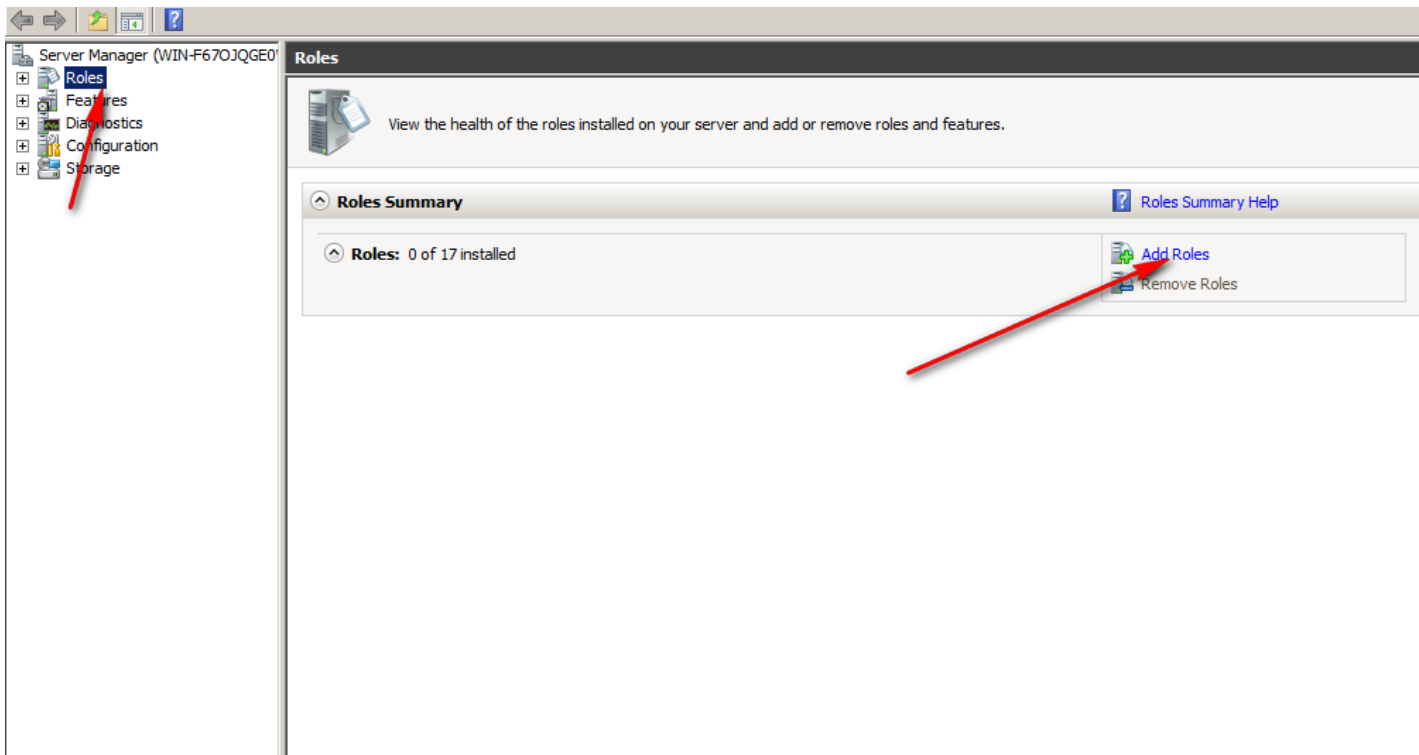
10.1- Make windows server 2008 works as the router

جعل الخادم يعمل كراوتر عن طريق windows server 2008

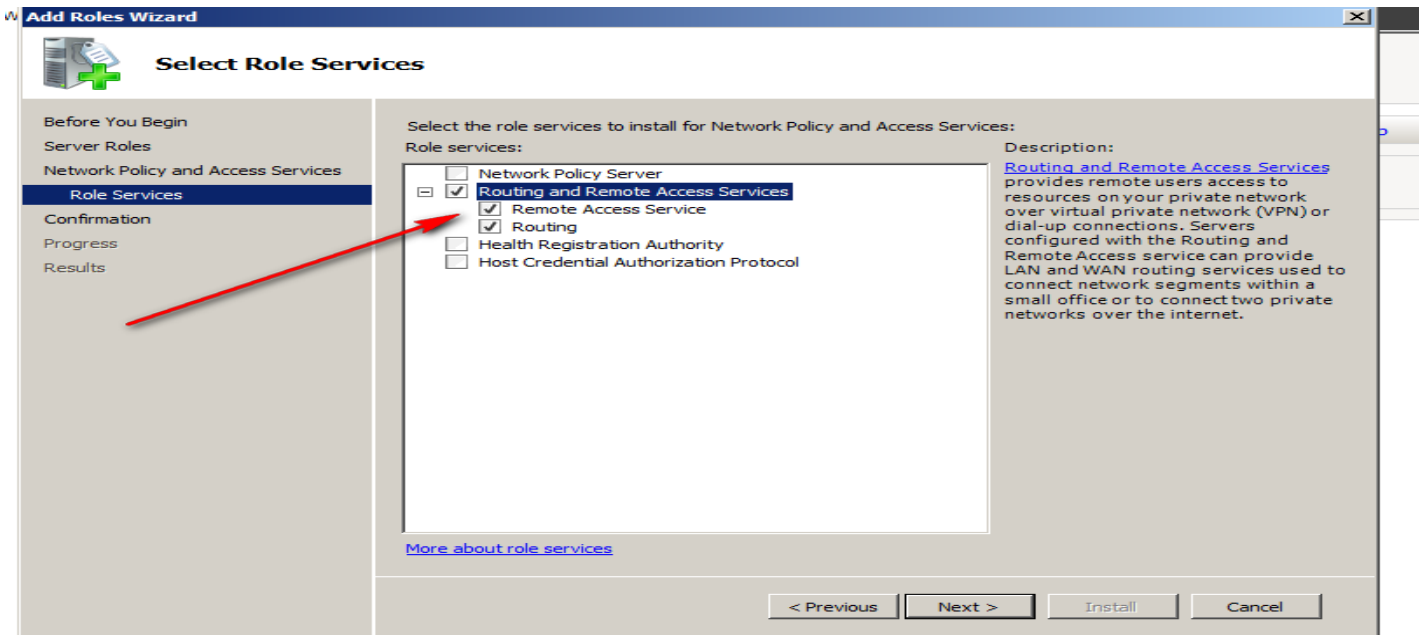
Windows server 2008 server manager



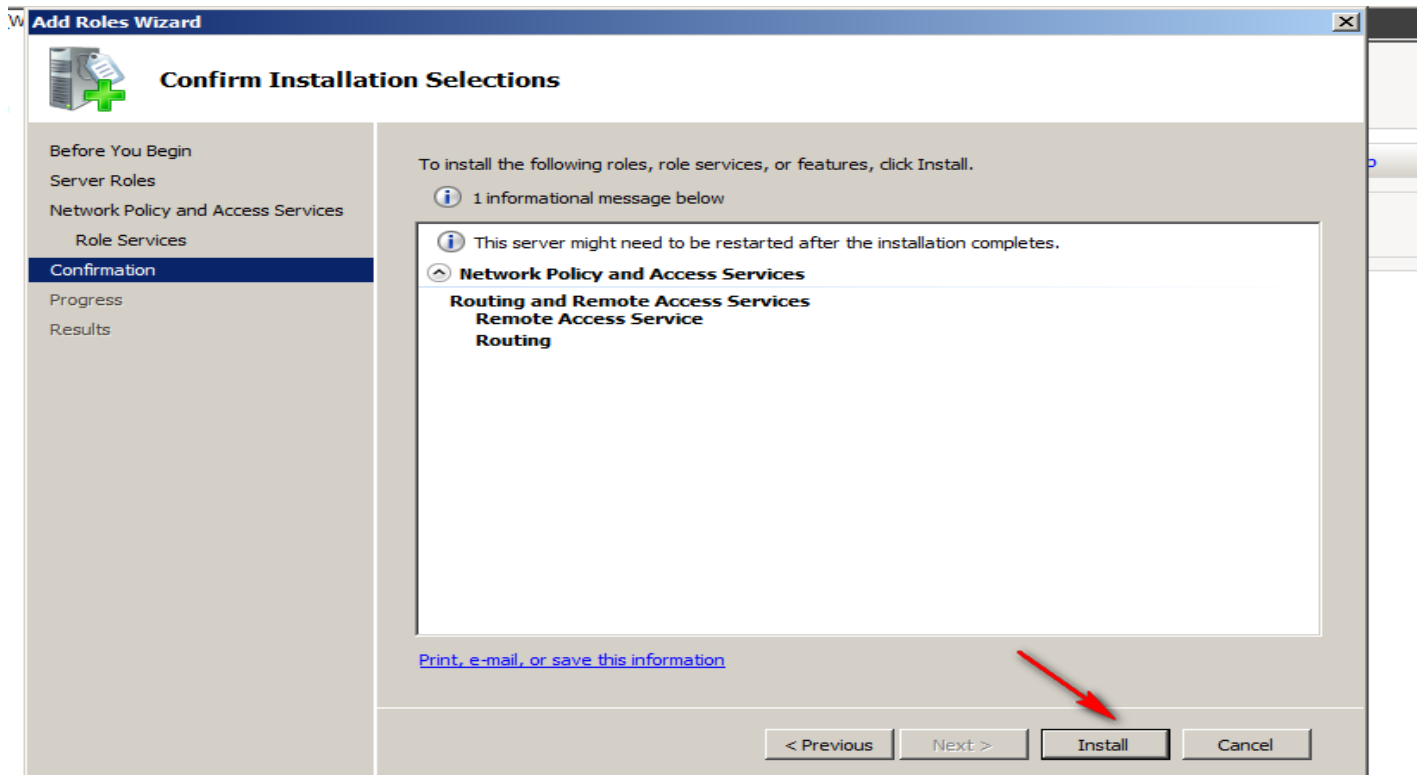
Install routing role on windows server 2008



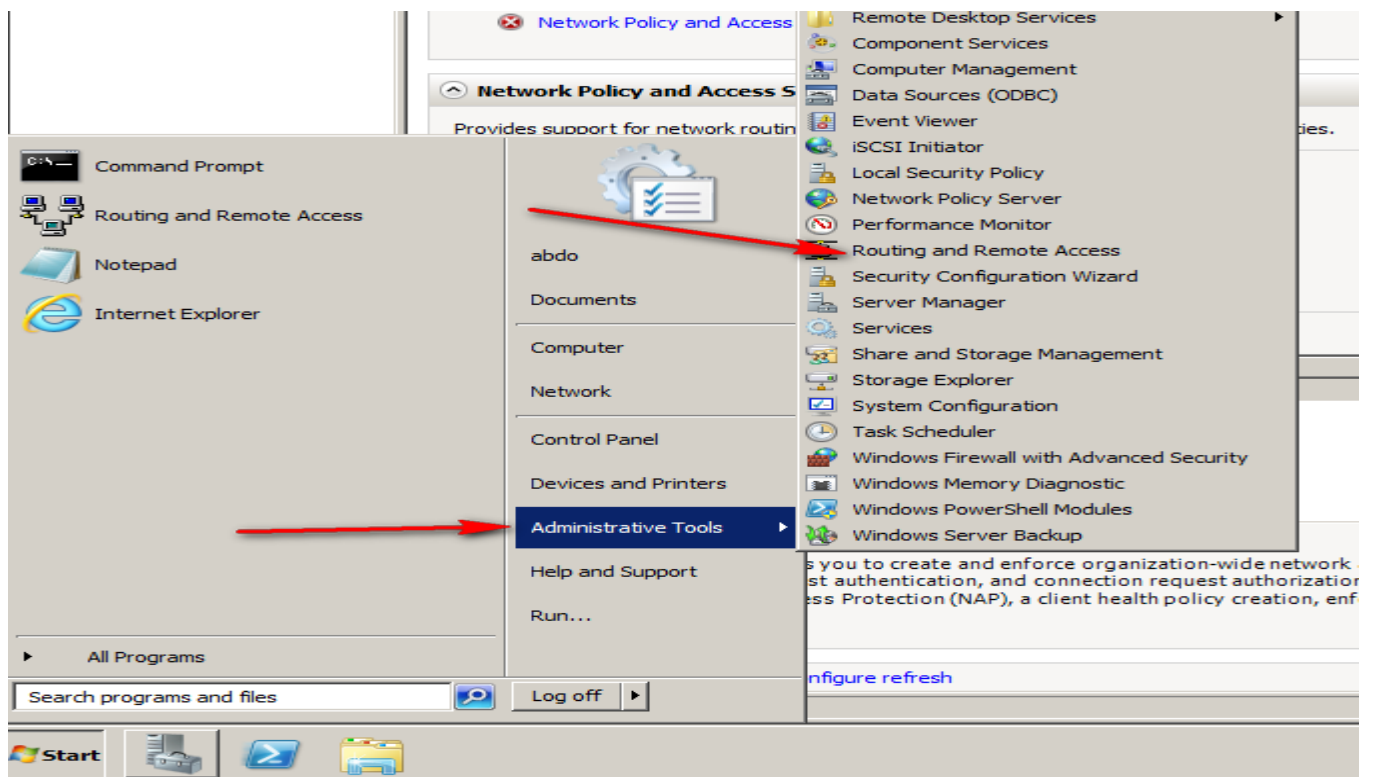
Routing and remote access services



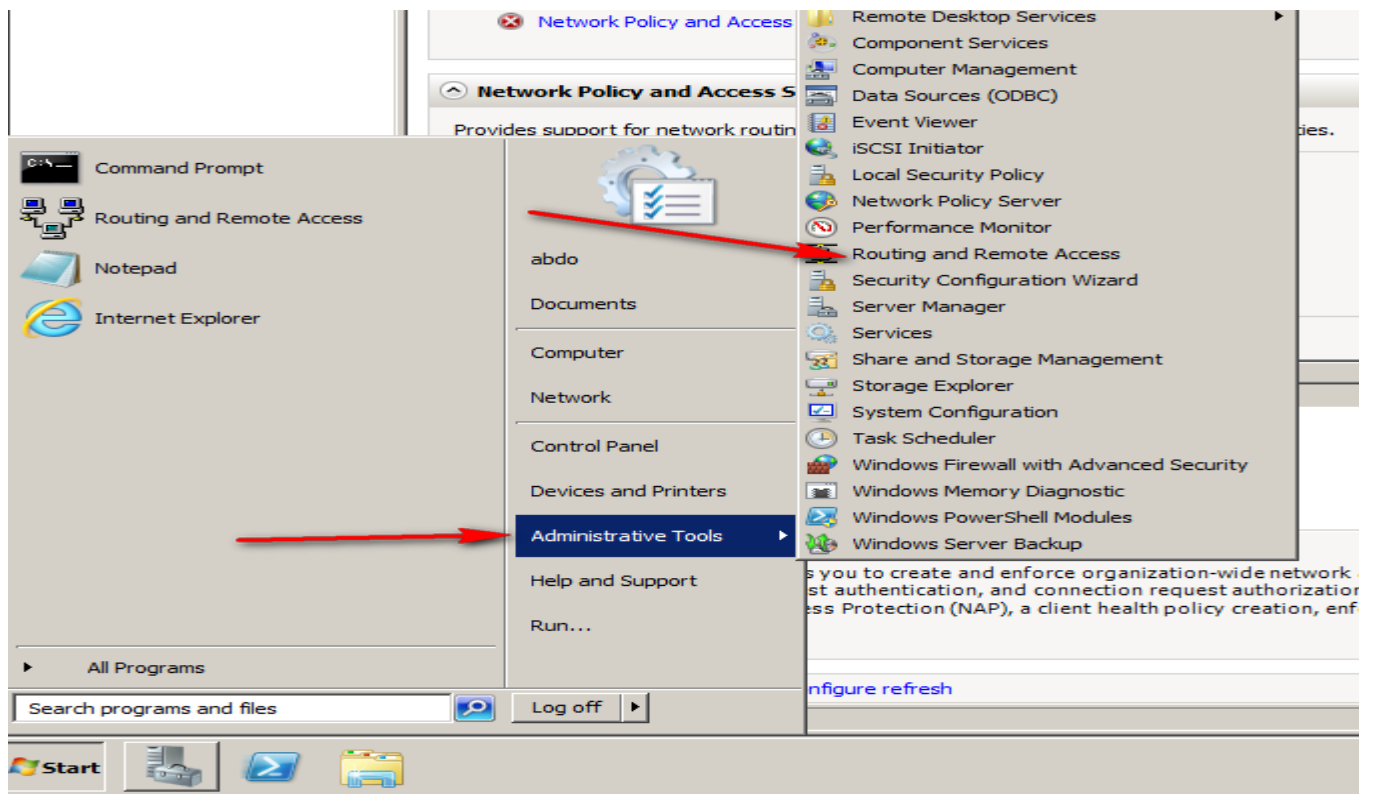
Install role



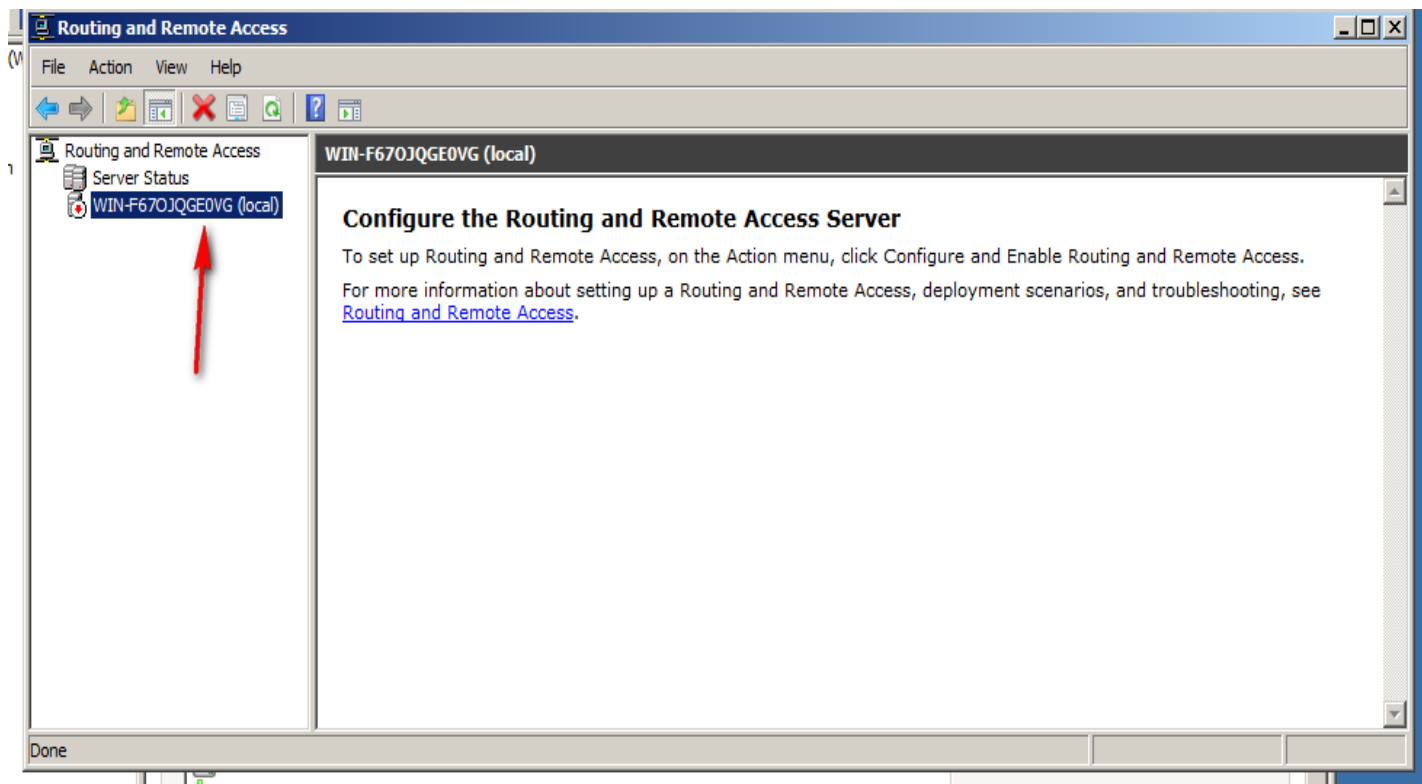
Open routing and remote access



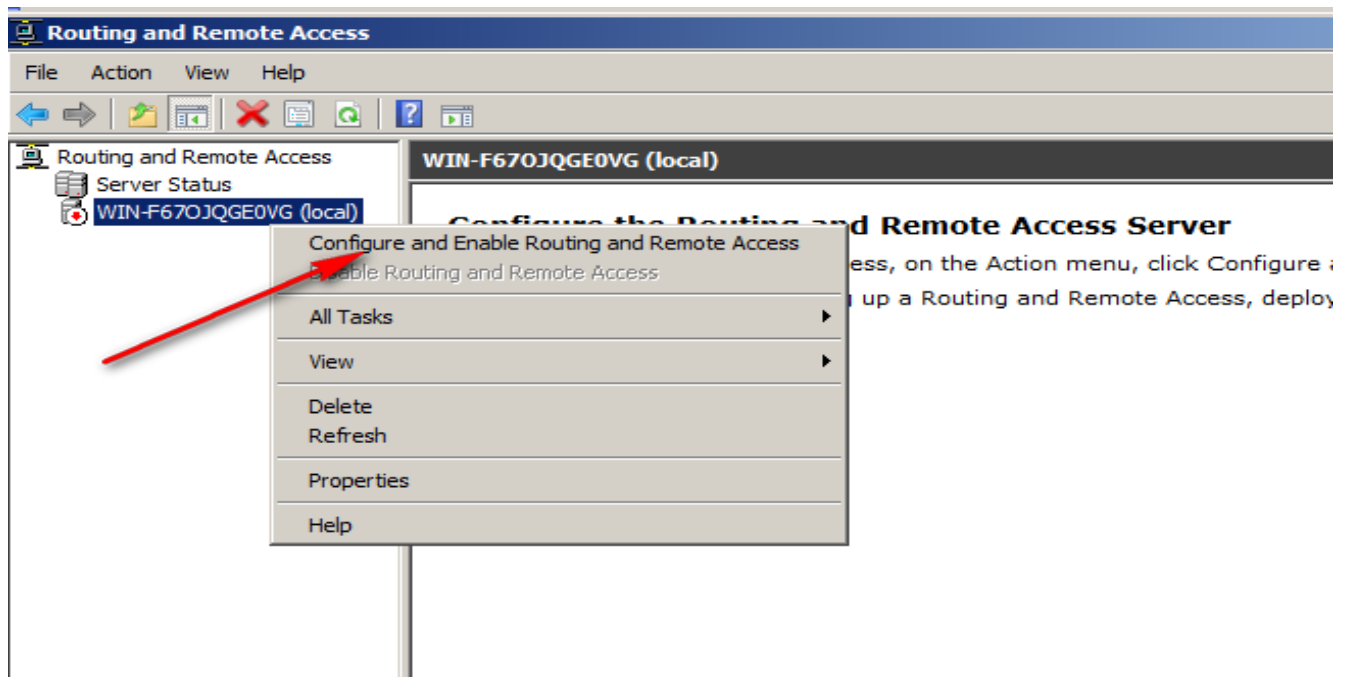
Open routing and remote access



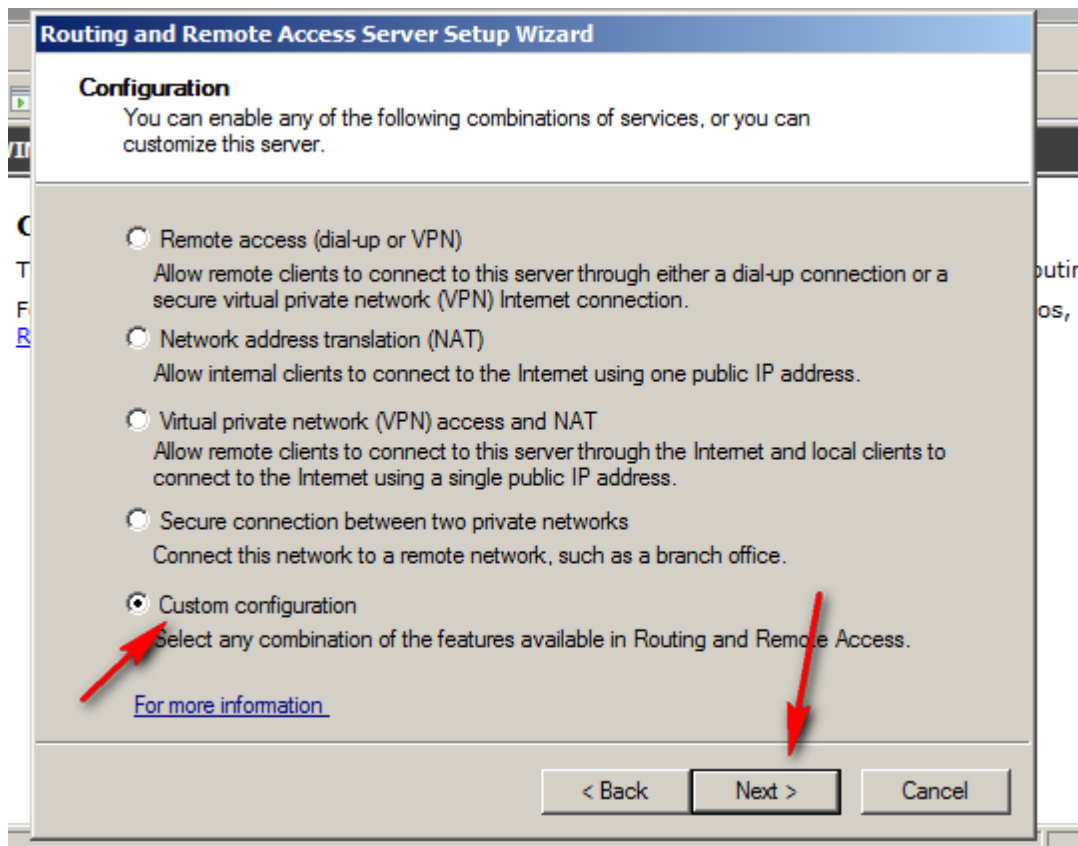
Enable the routing on server



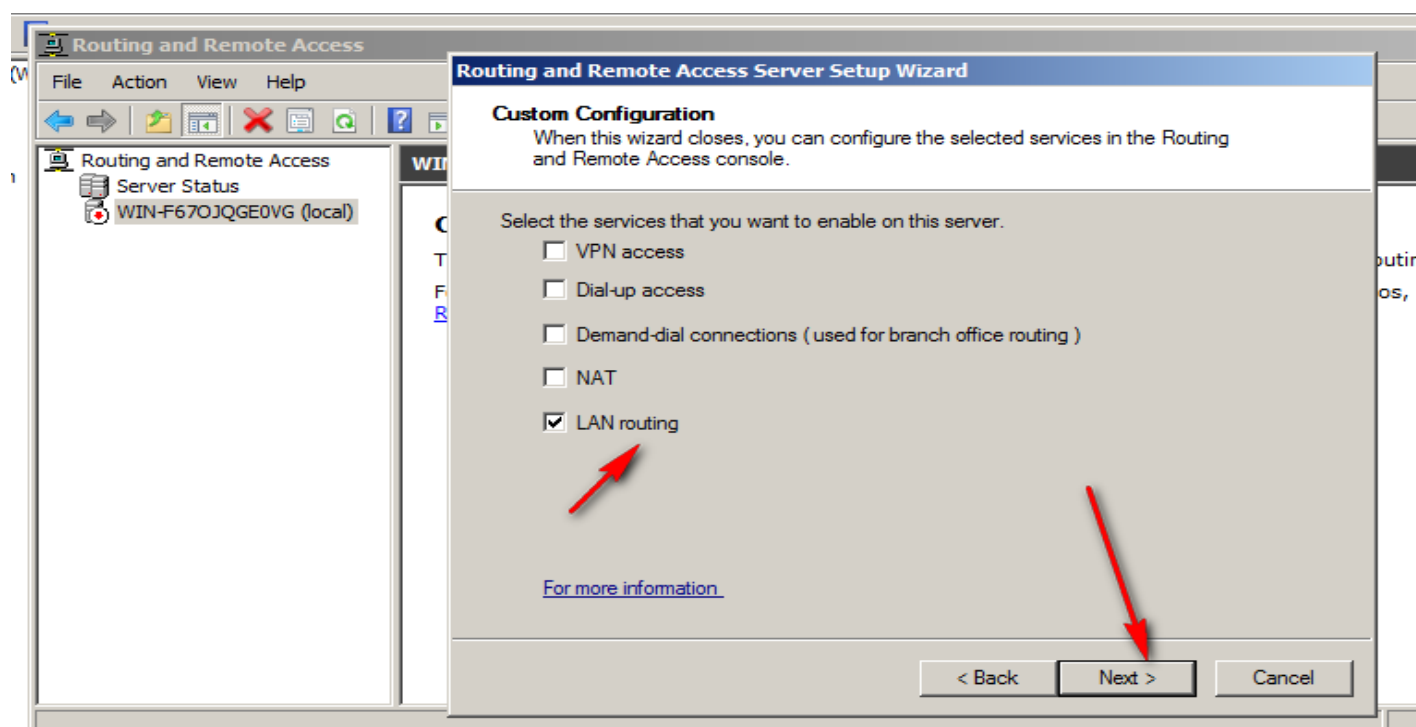
Enable the routing on server



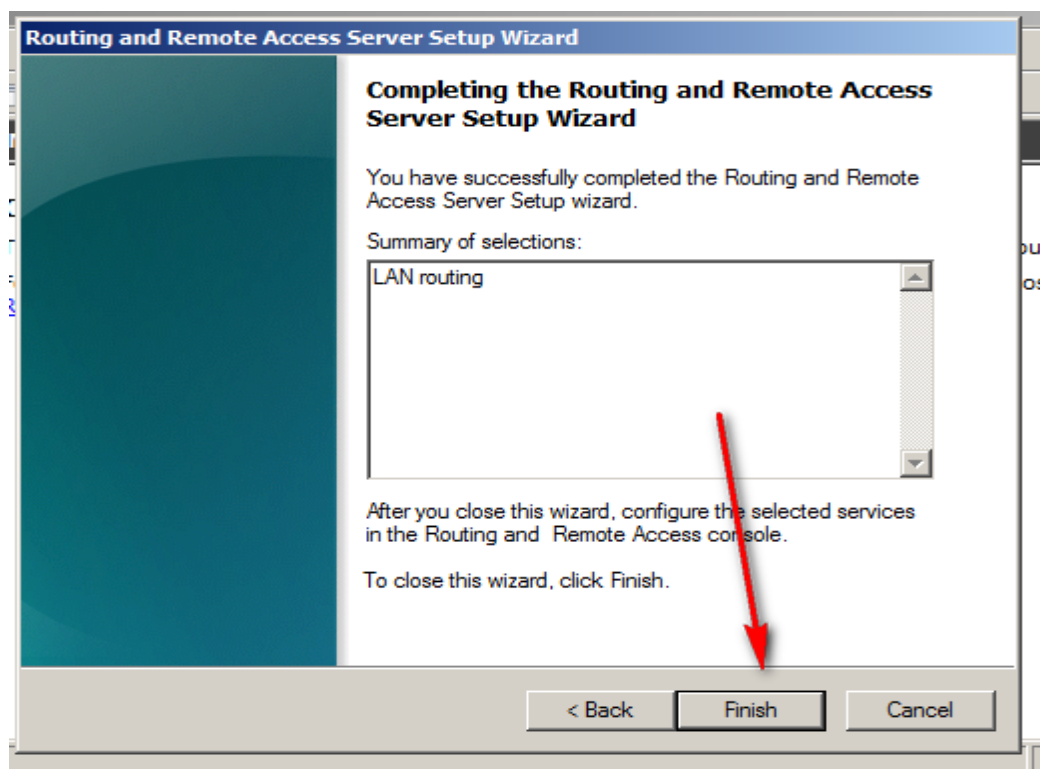
Choice custom configuration



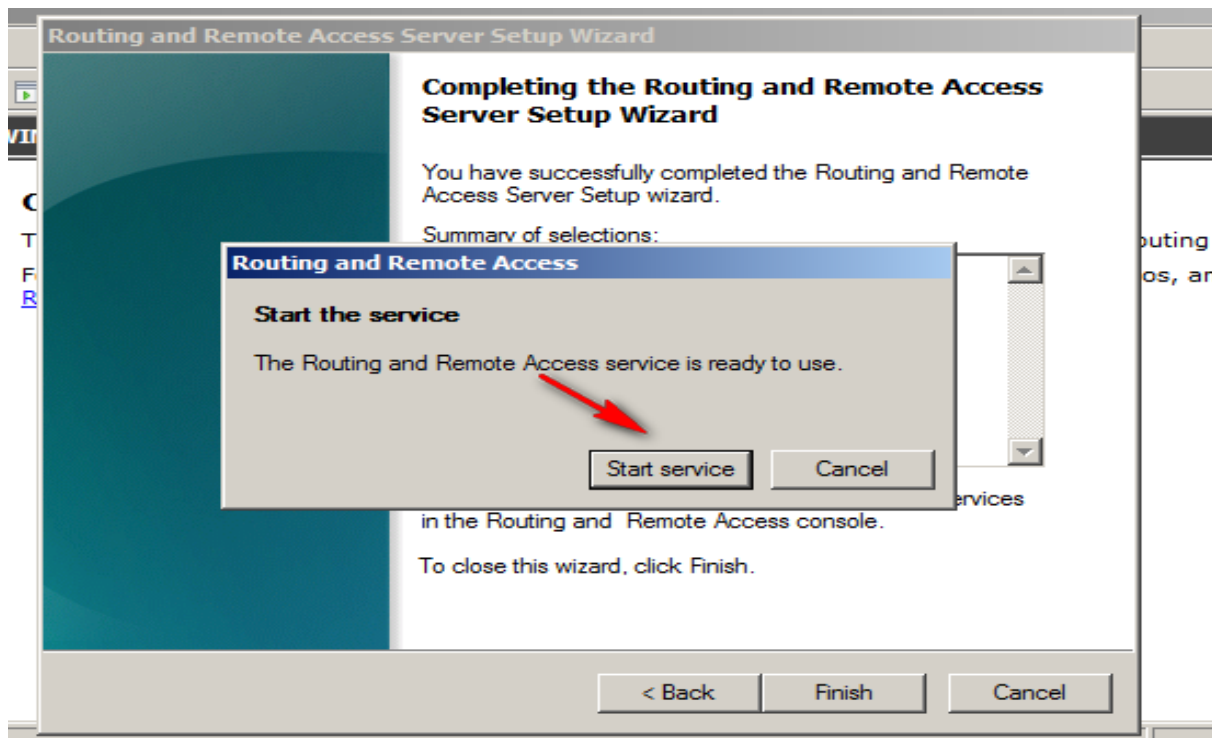
LAN routing



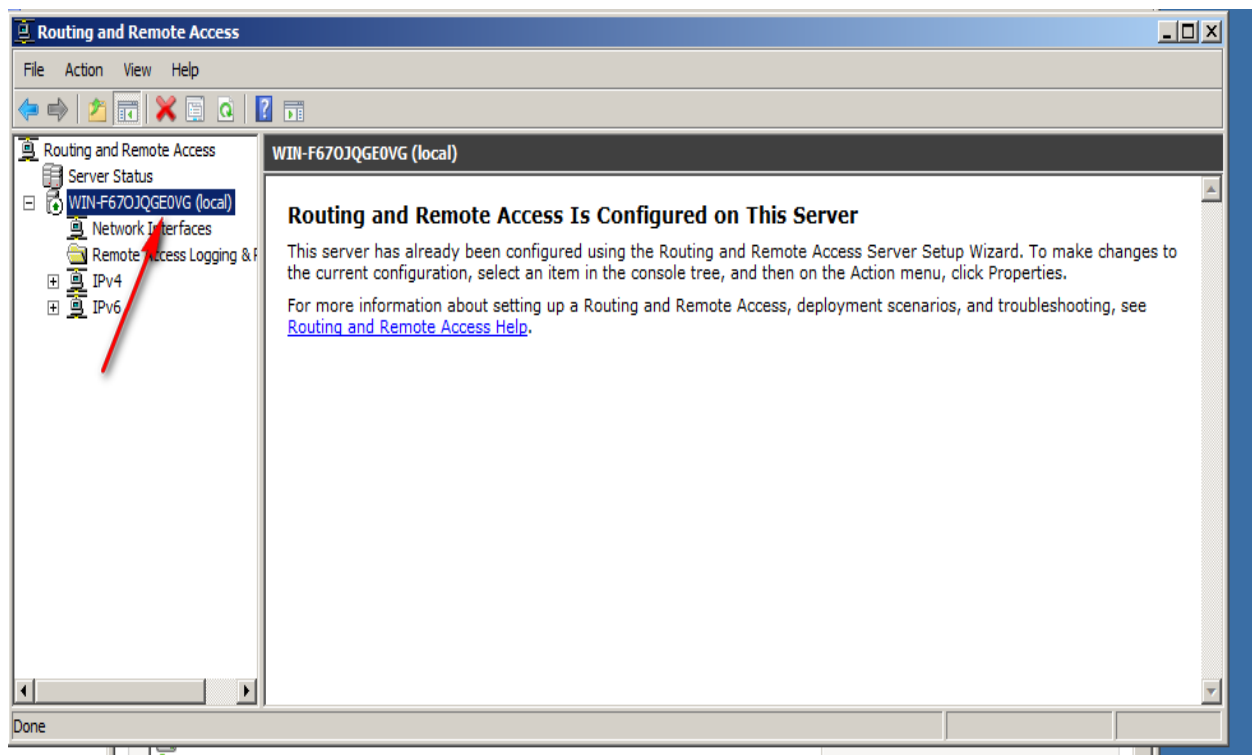
Press finish



Start the services



Now server works as router



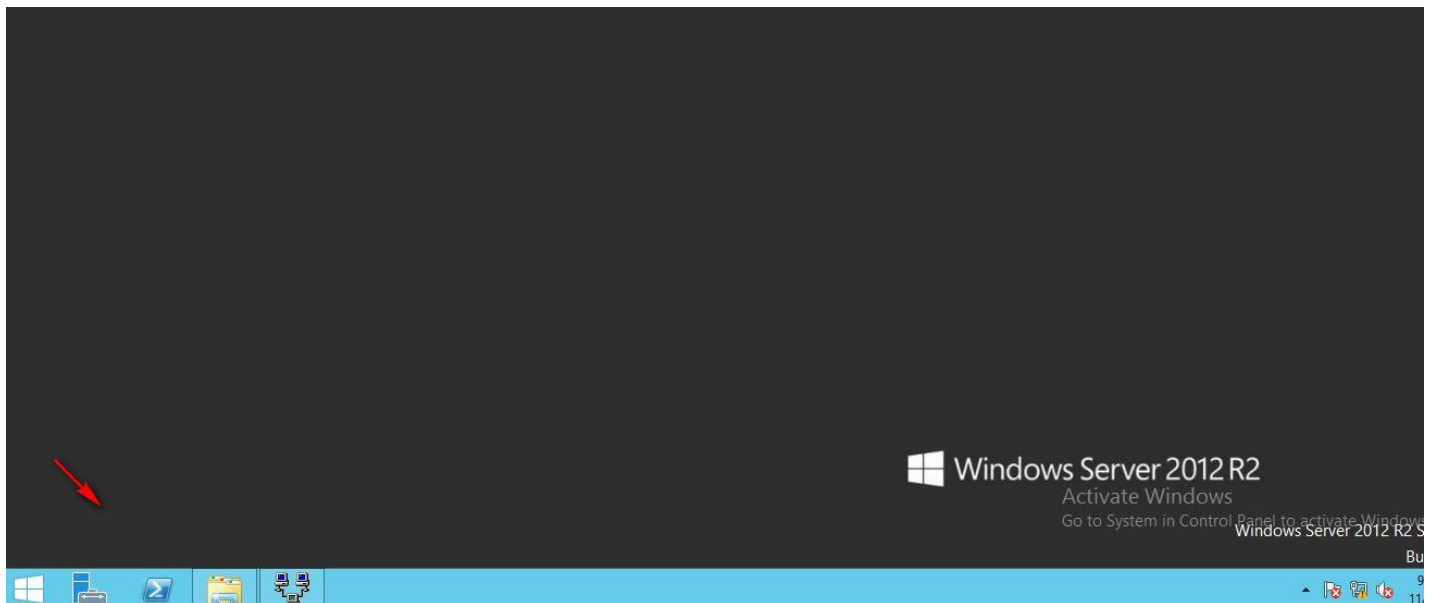
Now Test the ping on real my computer

```
ng 192.168.66.20  
ng 192.168.66.20 with 32 bytes of data:  
from 192.168.66.20: bytes=32 time=3ms TTL=128  
from 192.168.66.20: bytes=32 time=5ms TTL=128  
from 192.168.66.20: bytes=32 time=6ms TTL=128  
from 192.168.66.20: bytes=32 time=5ms TTL=128
```

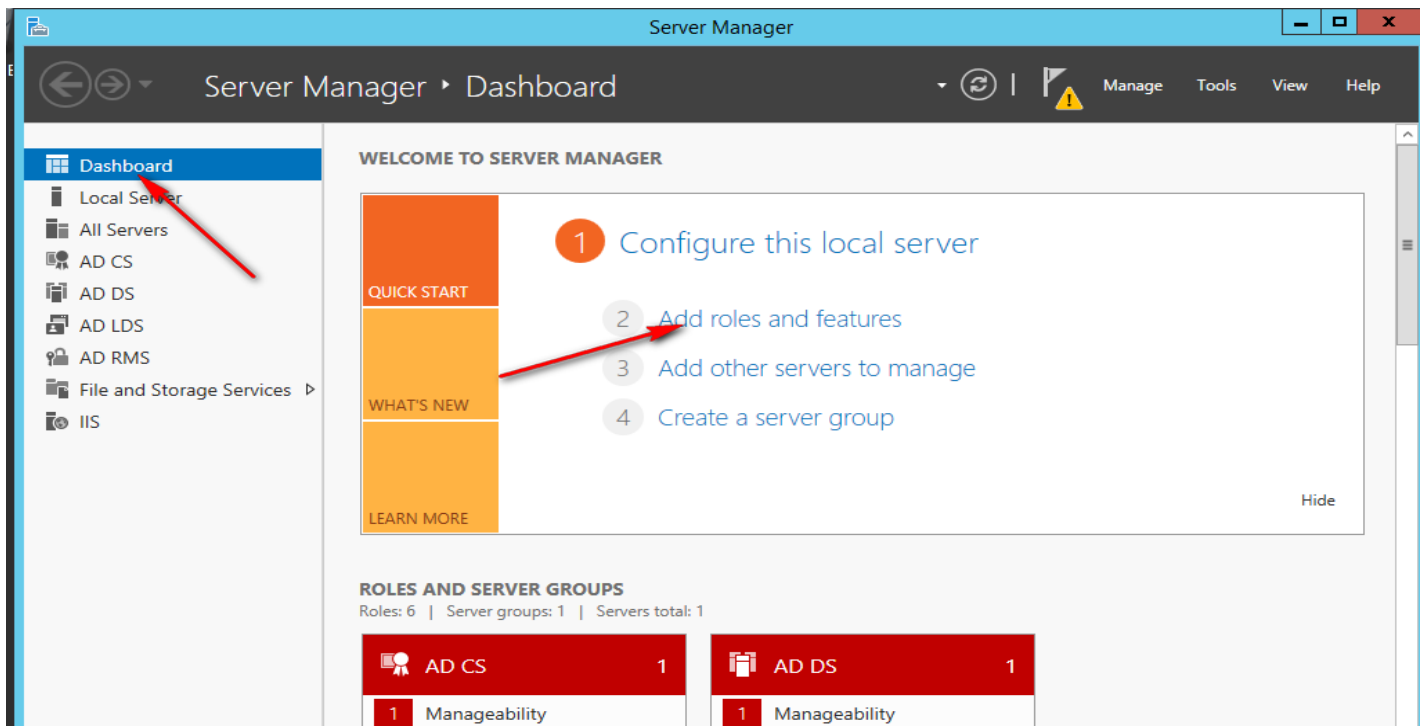
10.2- Make windows server 2012 works as the router

جعل الخادم يعمل كراوتر عن طريق windows server 2012

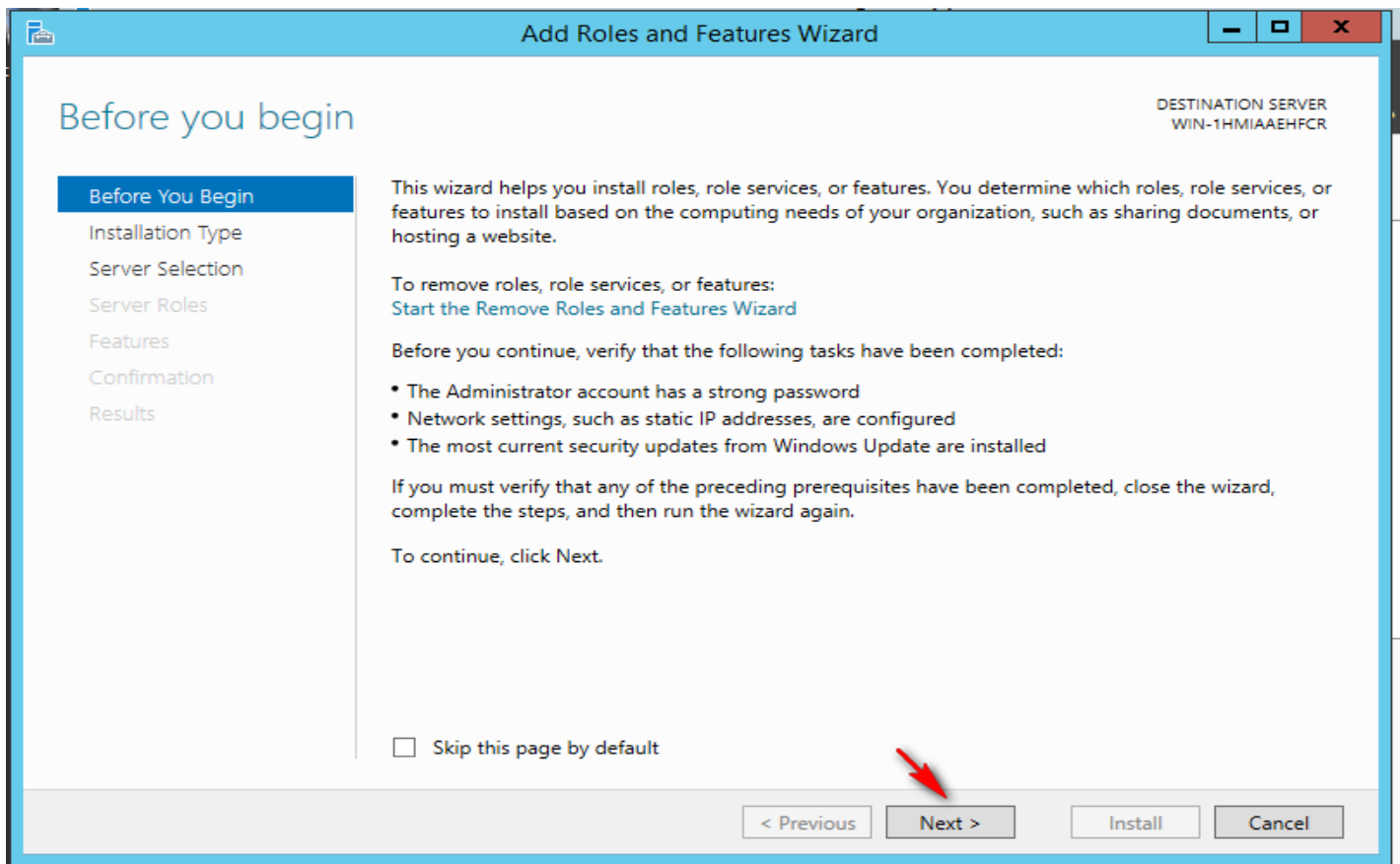
Same in Windows server 2012



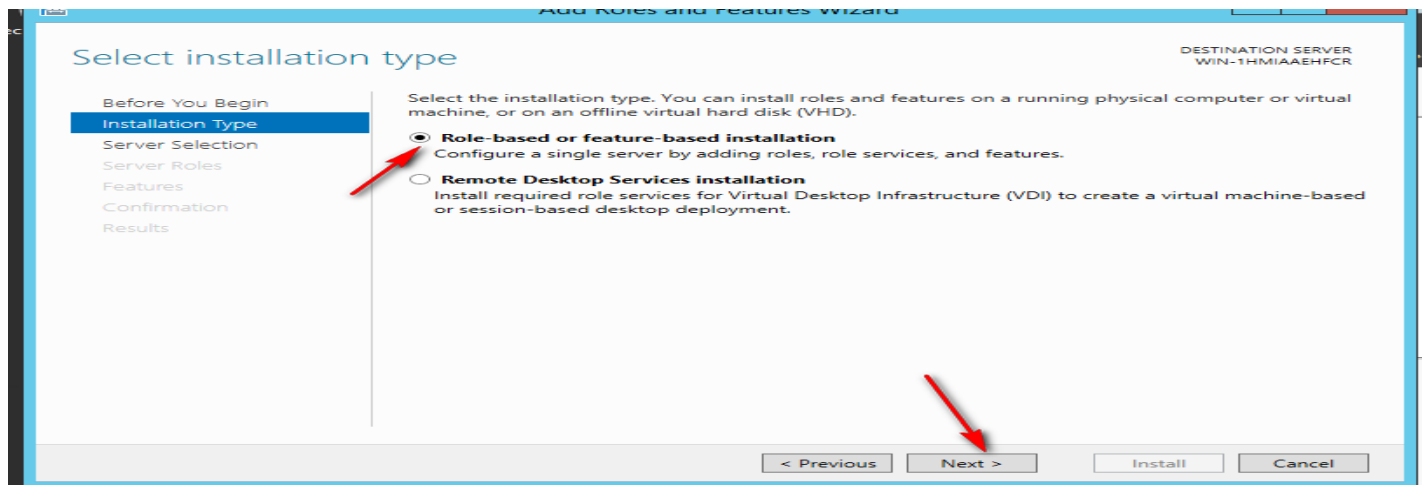
Add role from server manager



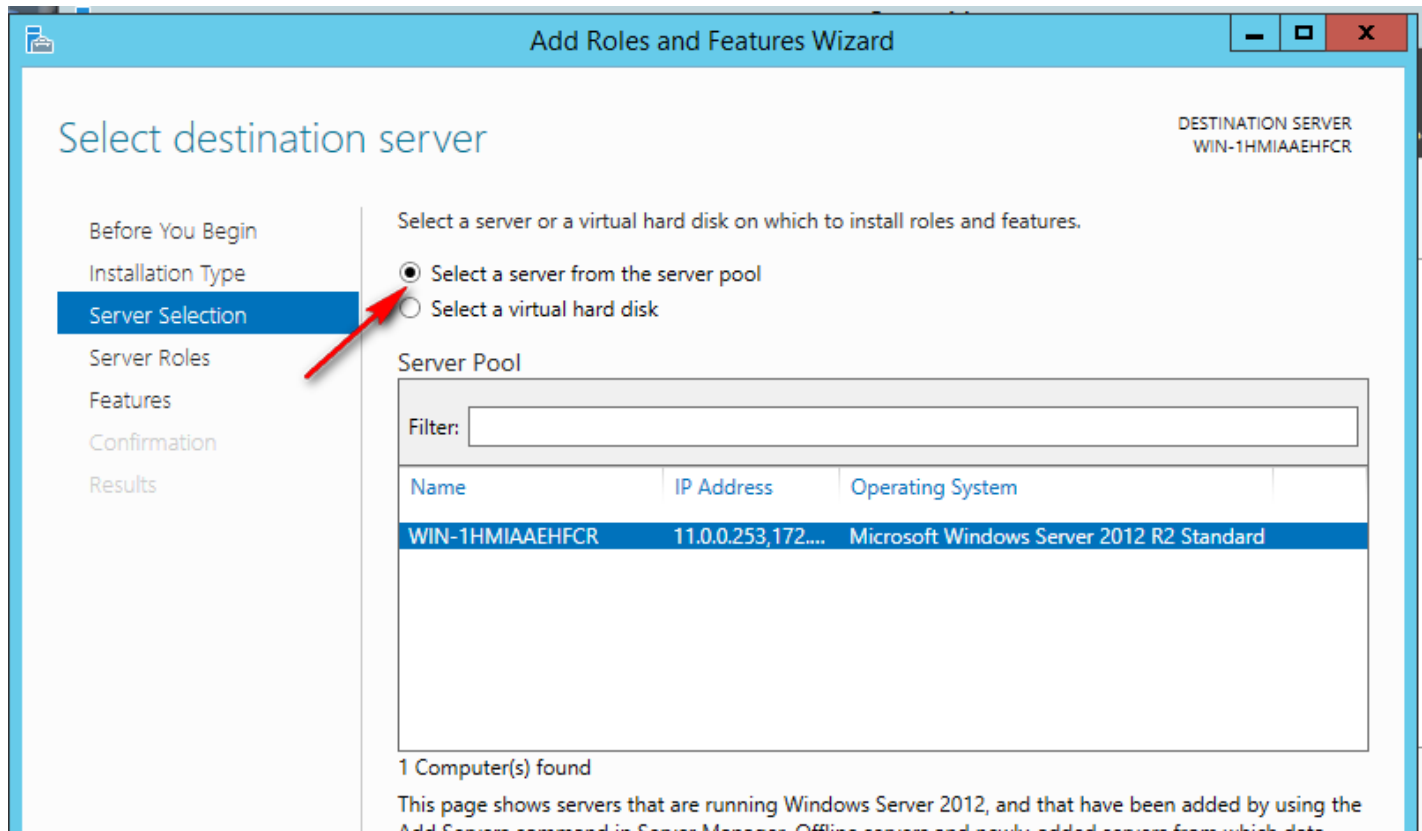
Add role from server manager



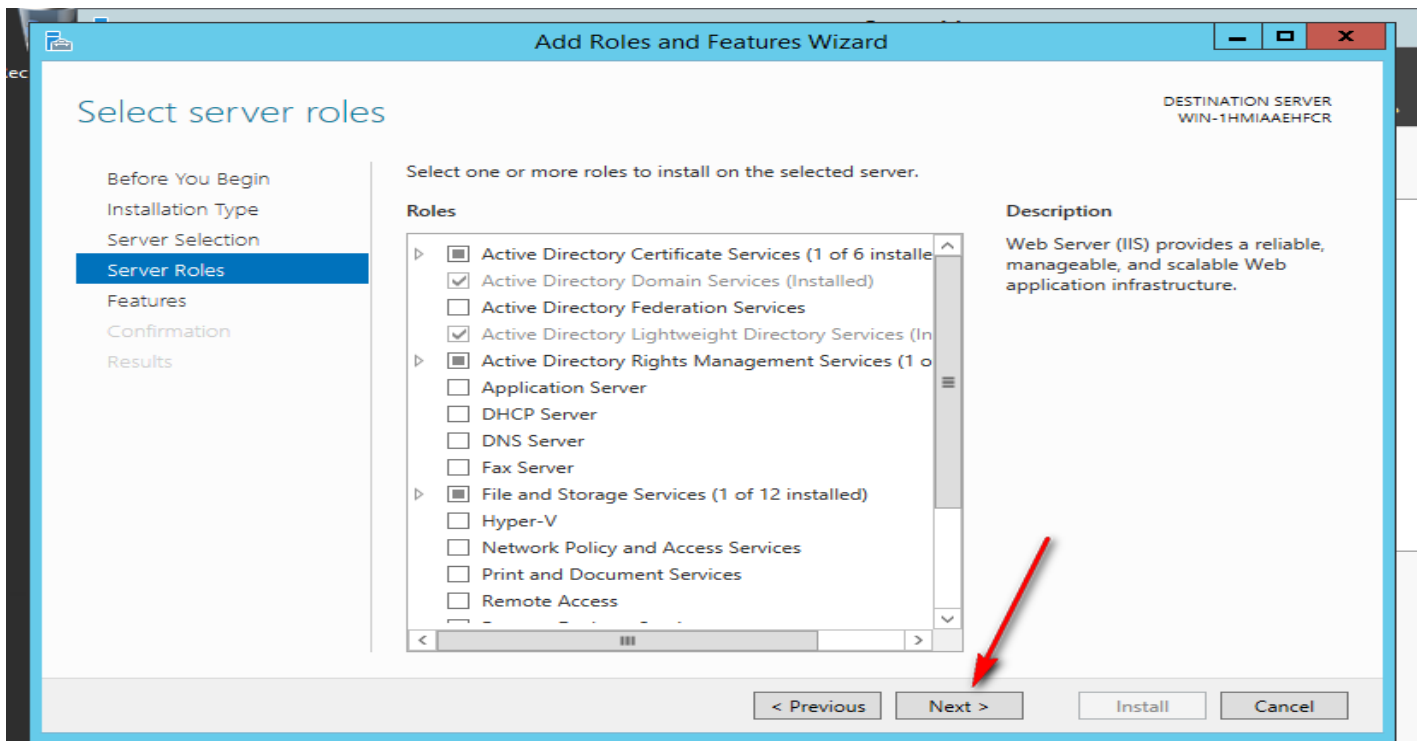
Role-based or feature-based installation



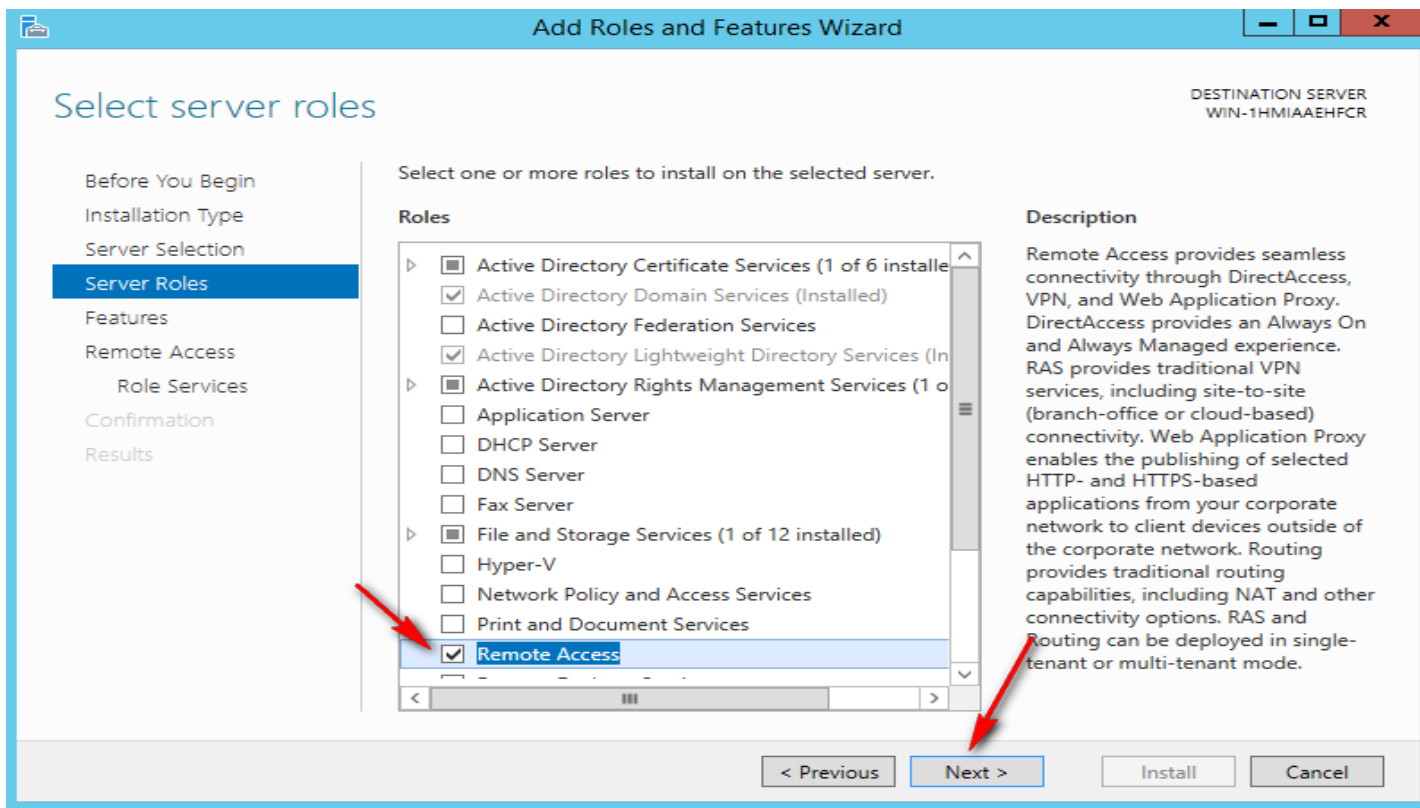
First option



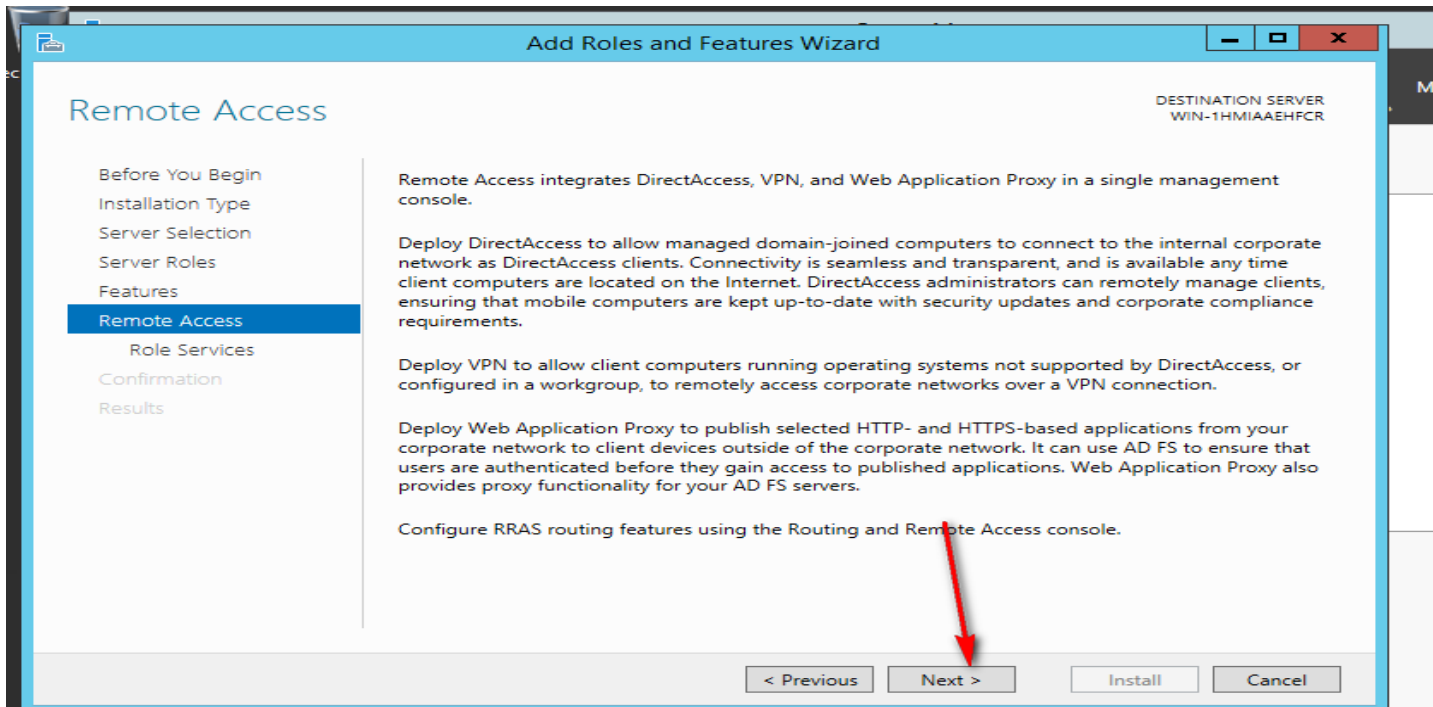
Next



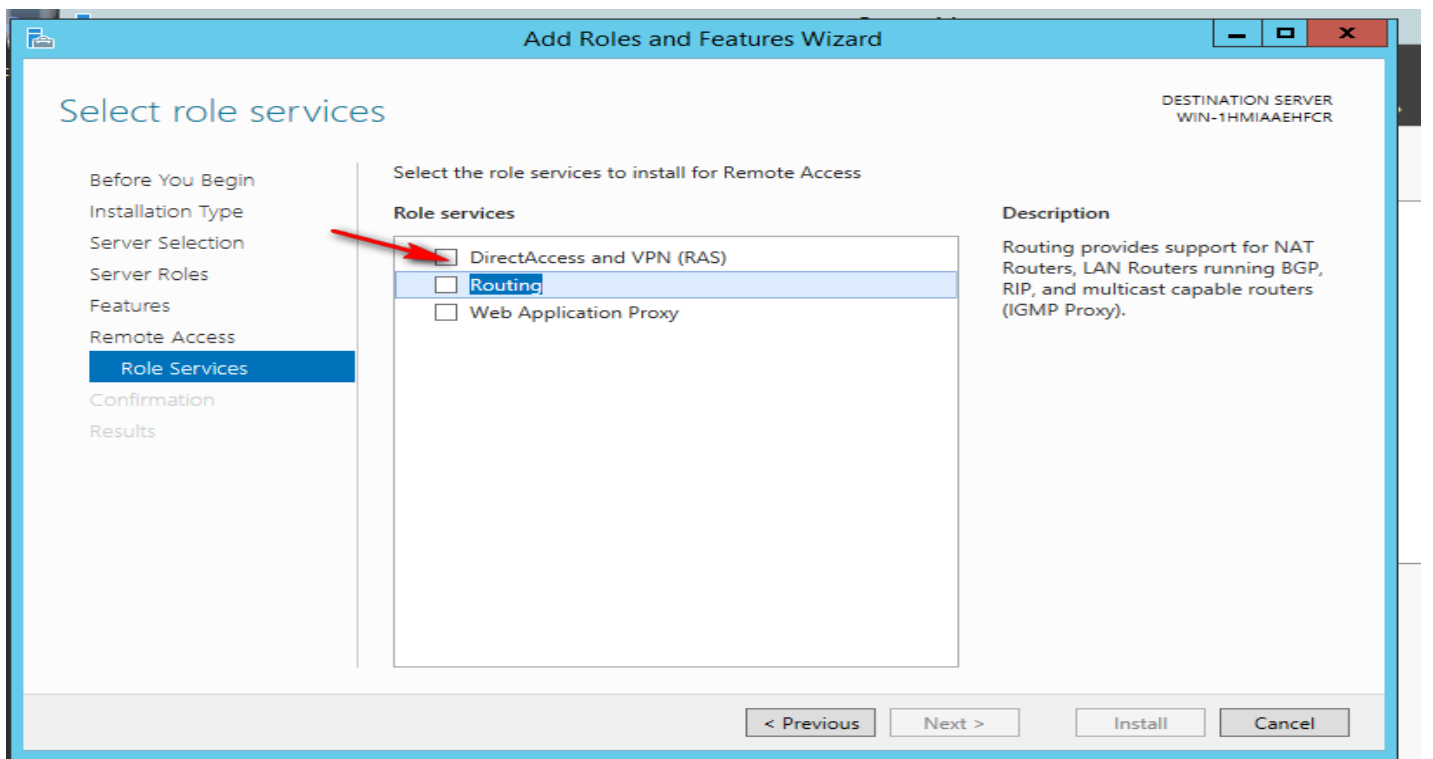
Choice remote access



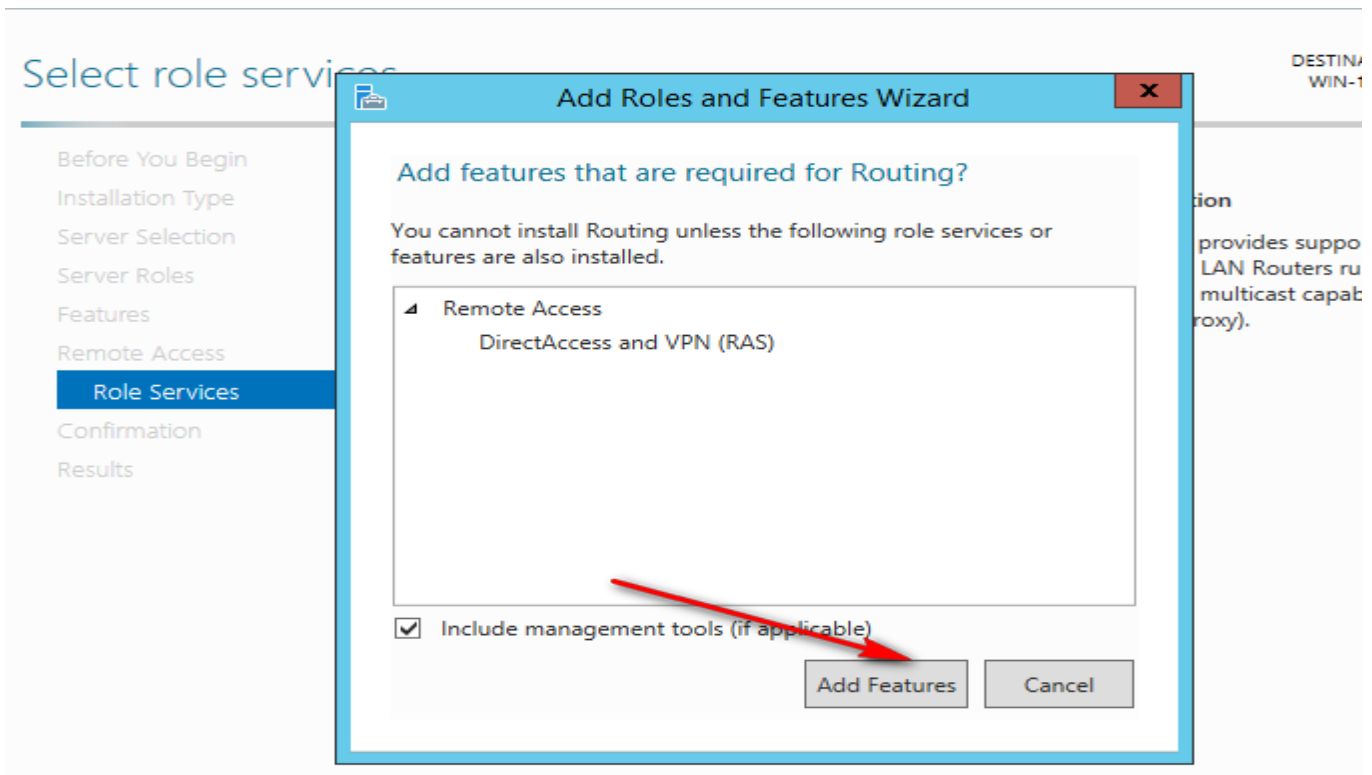
Next



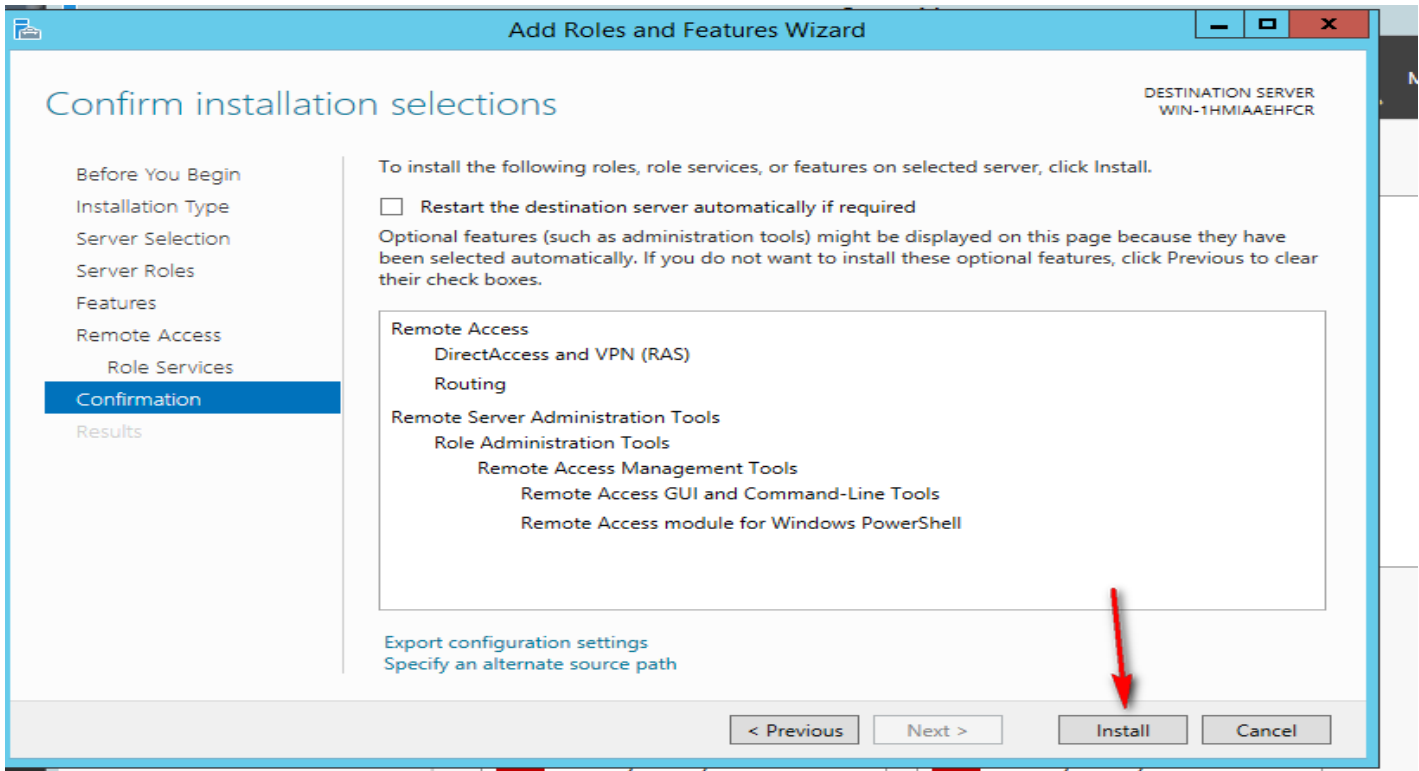
Choice all options

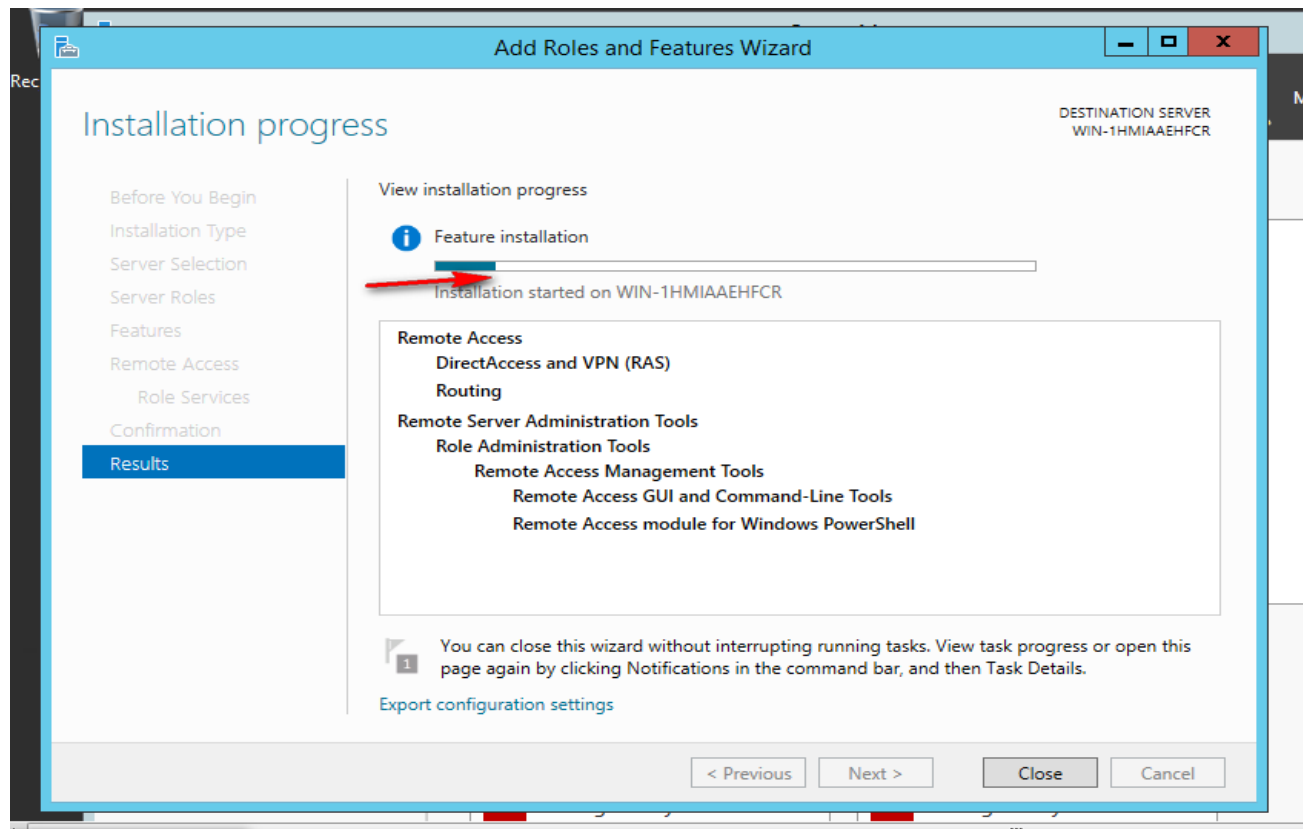


Add features

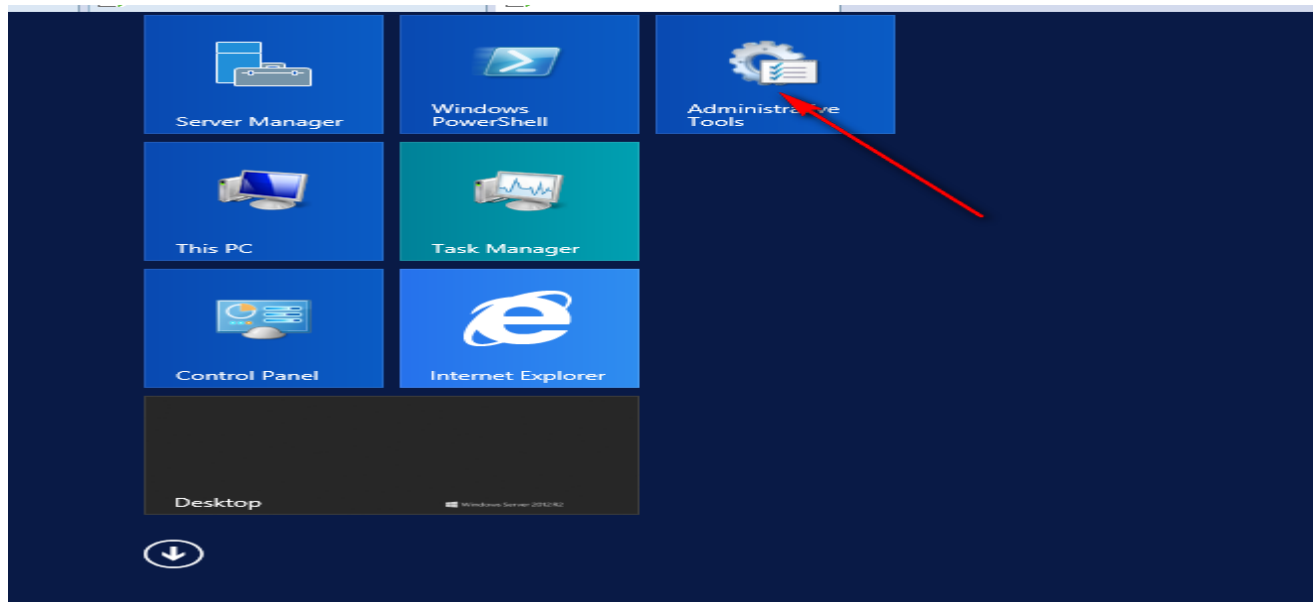


Install

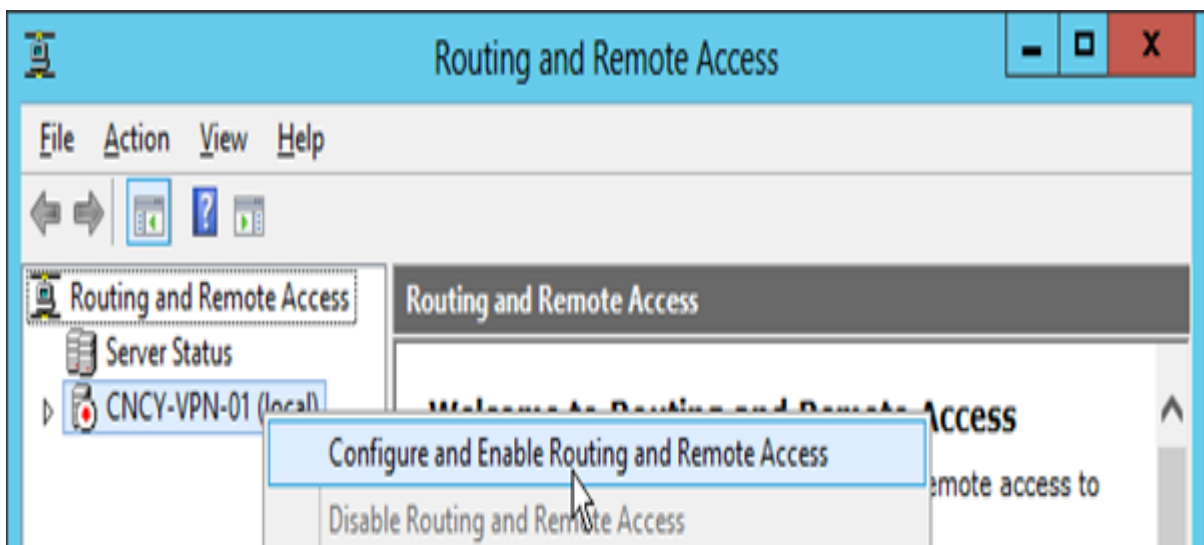
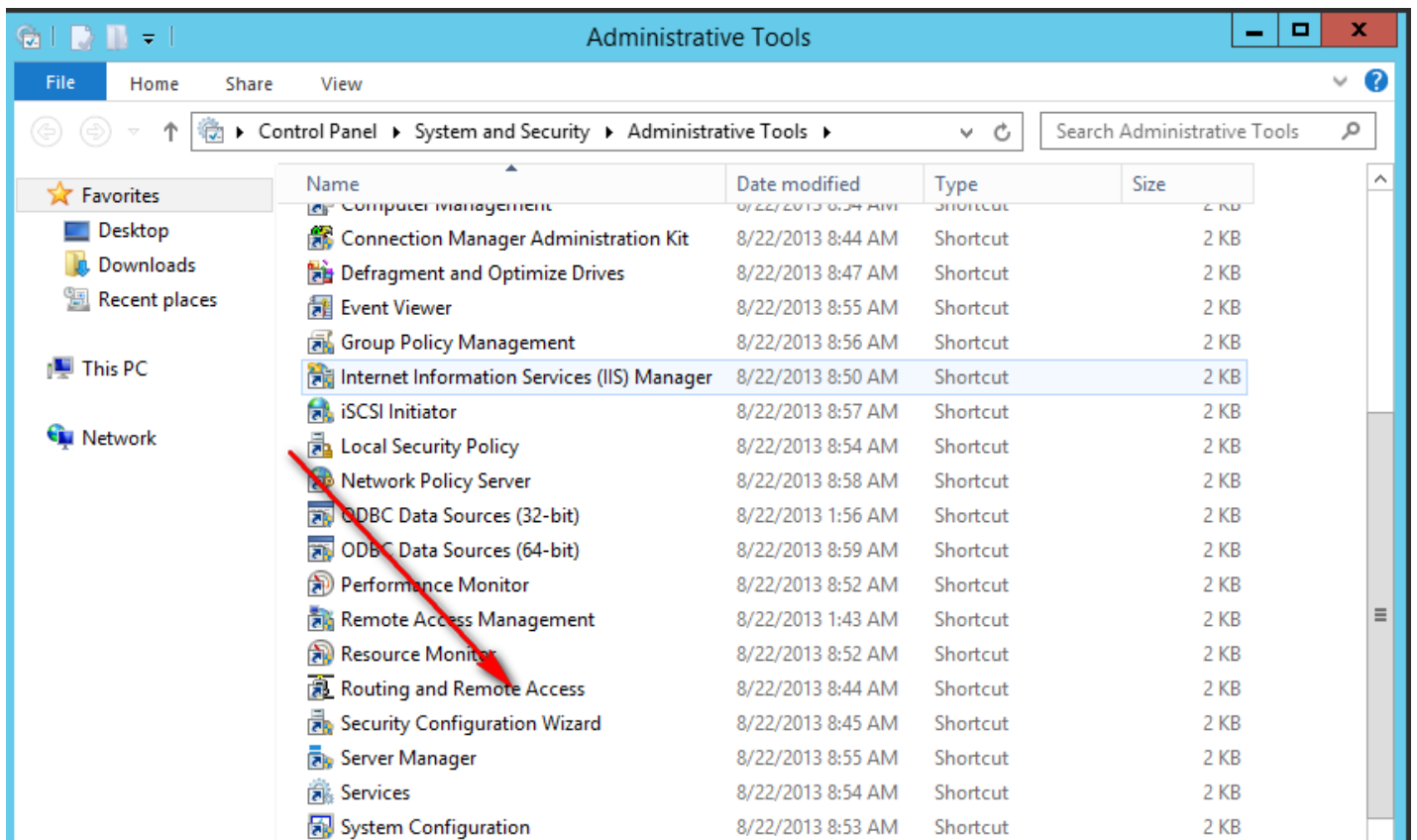


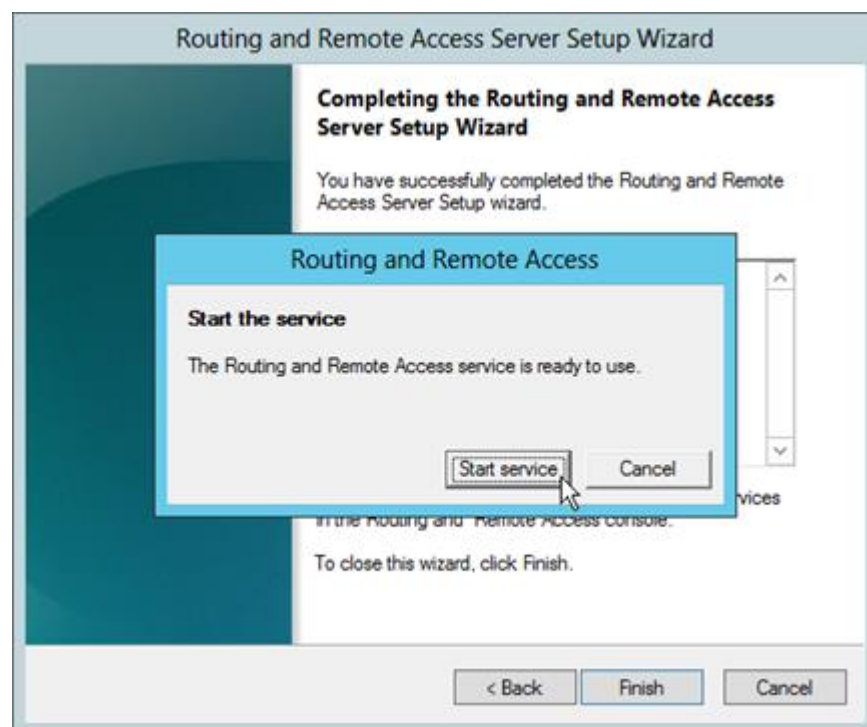
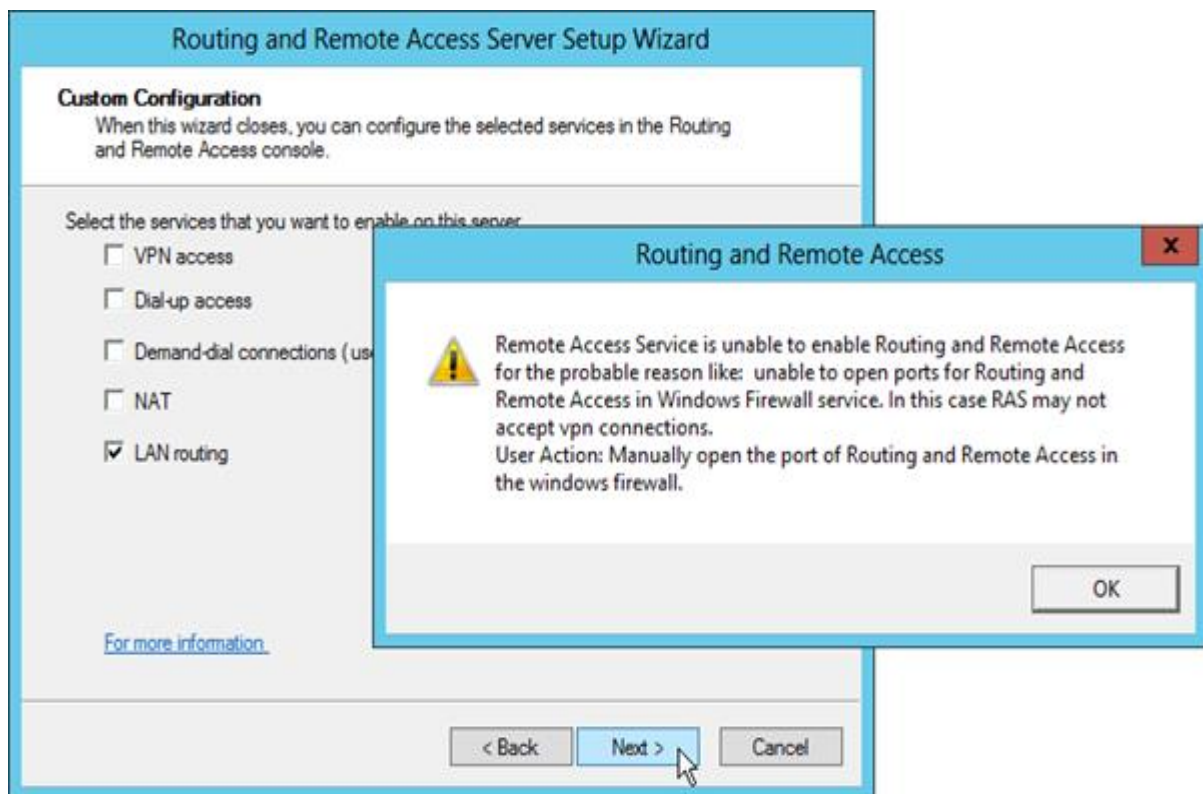


Administrative tools



Routing and remote access



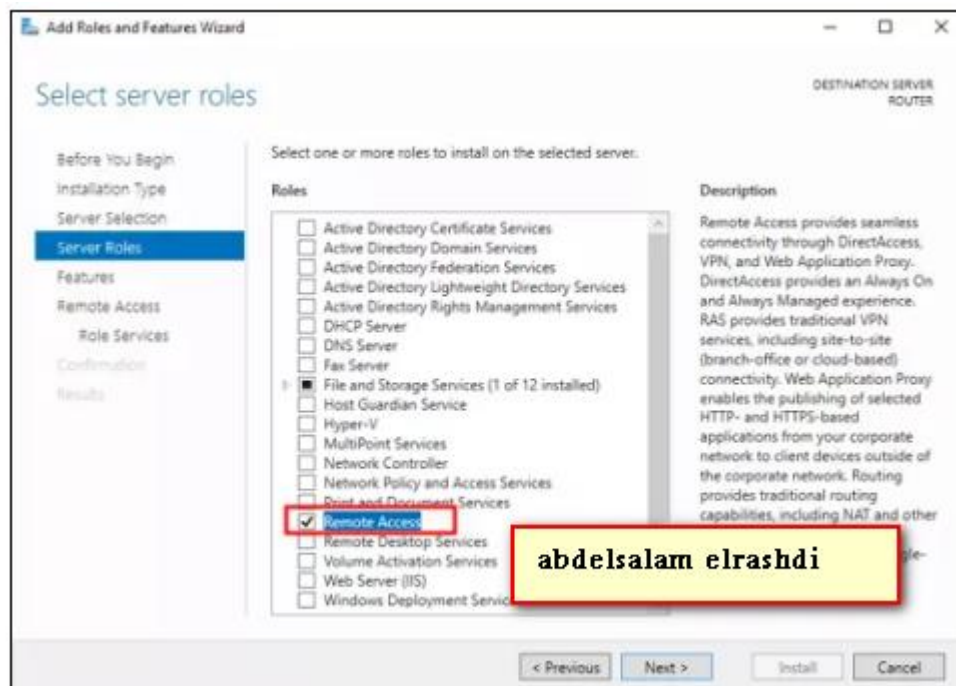




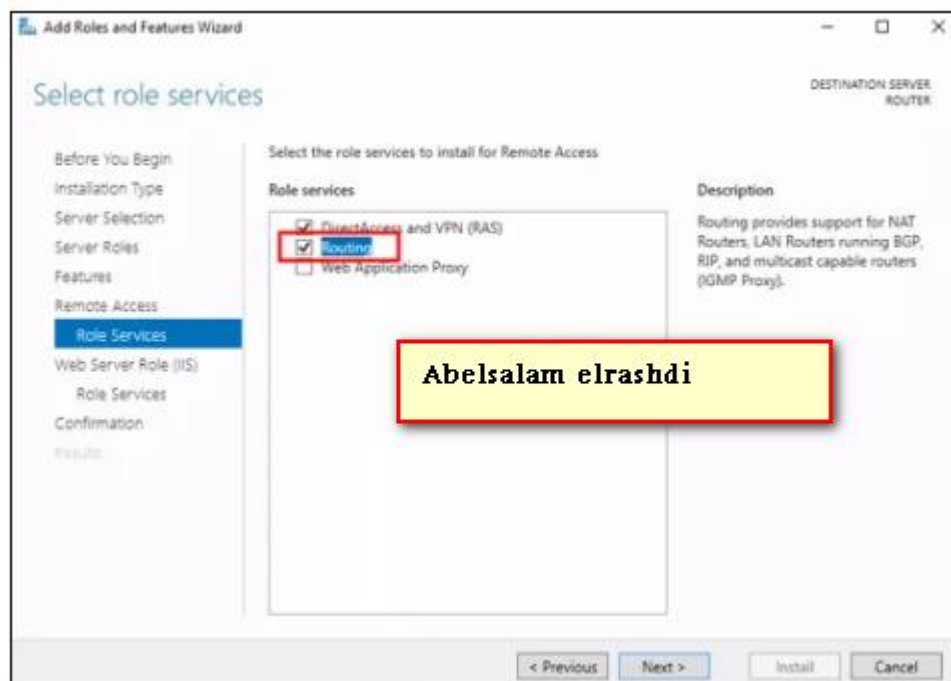
10.3- Make windows server 2016 works as the router

جعل الخادم يعمل كراوتر عن طريق windows server 2016

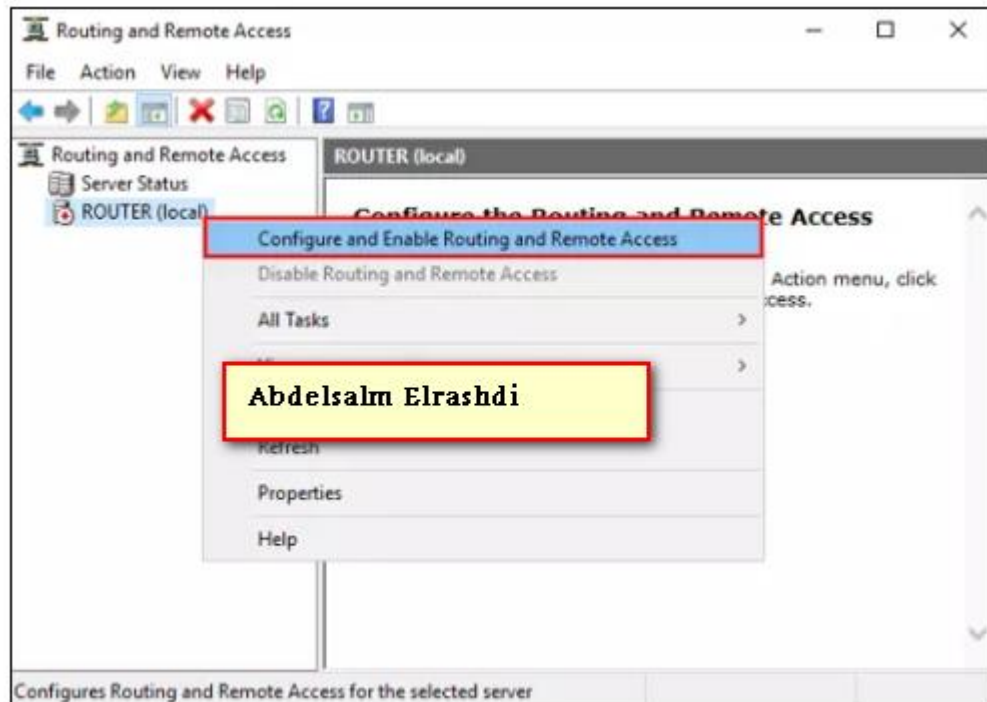
To install the LAN Routing feature in Windows Server 2016, open the Server Manager console. Click the Add roles and features link, accept the default selection until the Select Server roles page displays. On this page, select the Remote Access server role and then click Next.



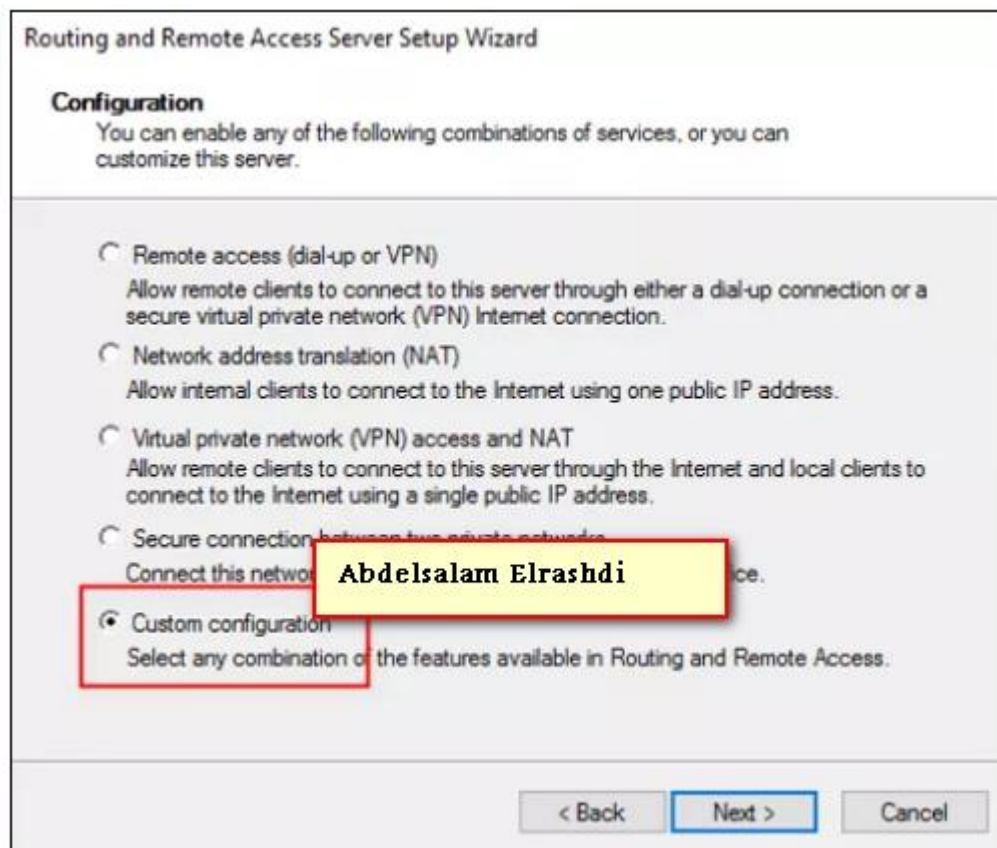
Click Next and accept the default selections until the Select roles services page displays. On this page, select the Routing role service.

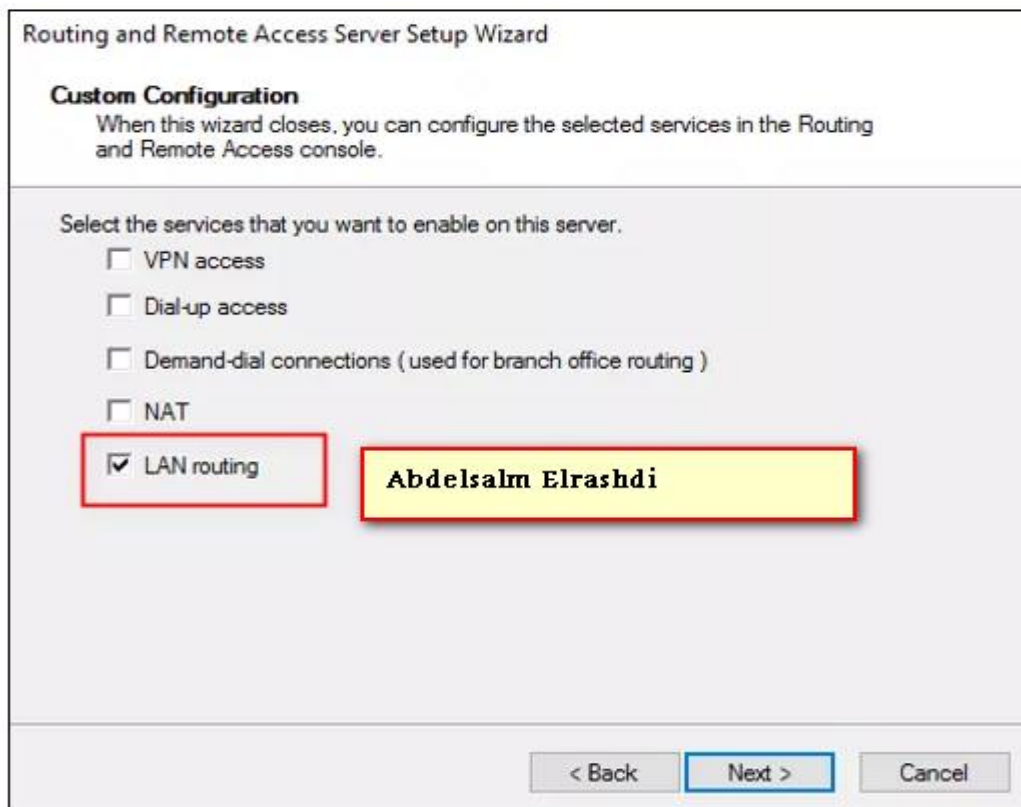


Select and right-click <Server Name> (local) and then select Configure and Enable Routing and Remote Access.



Use the Custom configuration and proceed to the next page





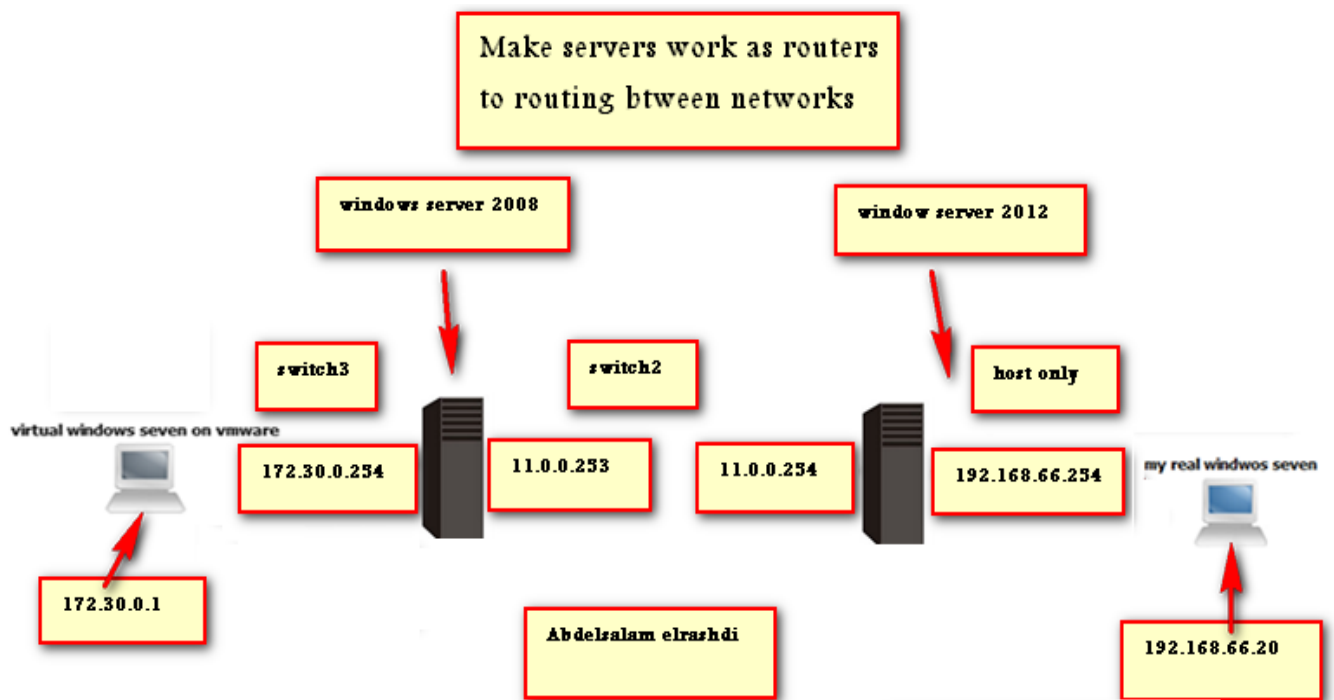
11- Routing between networks

عملية التوجيه وهي عبارة عن توجيه البيانات لمسار معين عندما يكون عندي أكثر من مسار بين الجهاز المرسل والجهاز المستقبل ونستخدم عمليتين (static or dynamic routing)

سوف نقوم بعمل سيناريو لتوضيح هذه العملية بشكل مفصل

Sometimes I have more than router on my network in this case I have to use static or dynamic routing protocols to make connectivity between those networks .

We will make small scenario have two servers work as router (window server 2008, windows server 2012) and two computers to create the static and dynamic routing protocols



11.1- Static routing

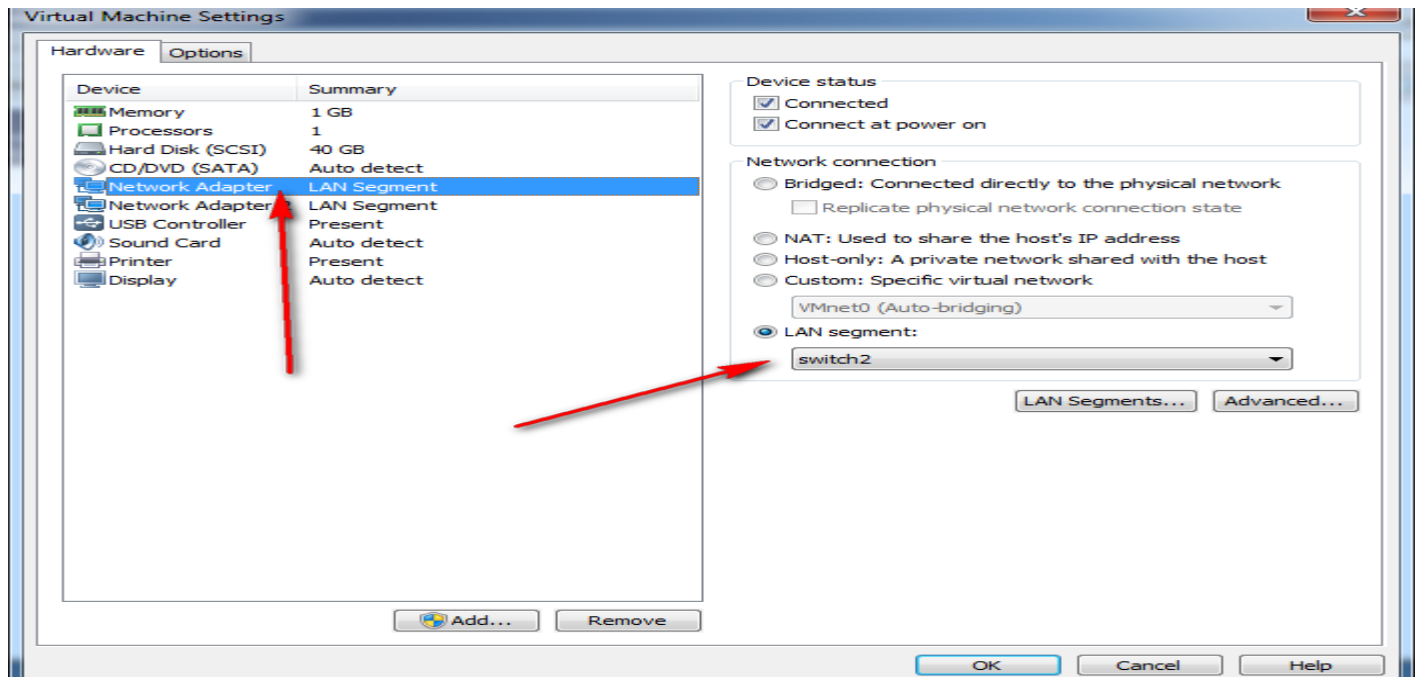
في هذه العملية يقوم مدير الشبكة بإعلام router ان هناك شبكات مختلفة بطريقة يدوية

Static routing is considered the simplest form of routing and requires excessive manual processes. It often is the least efficient way of routing in cases where information paths have to be changed frequently. This is also the case for configurations that require a large number of routing devices, because each one must be manually entered. Static routing is also the least preferred method of dealing with outages or down connections, because any route that is configured manually must be reconfigured manually to fix or repair any lost connectivity.

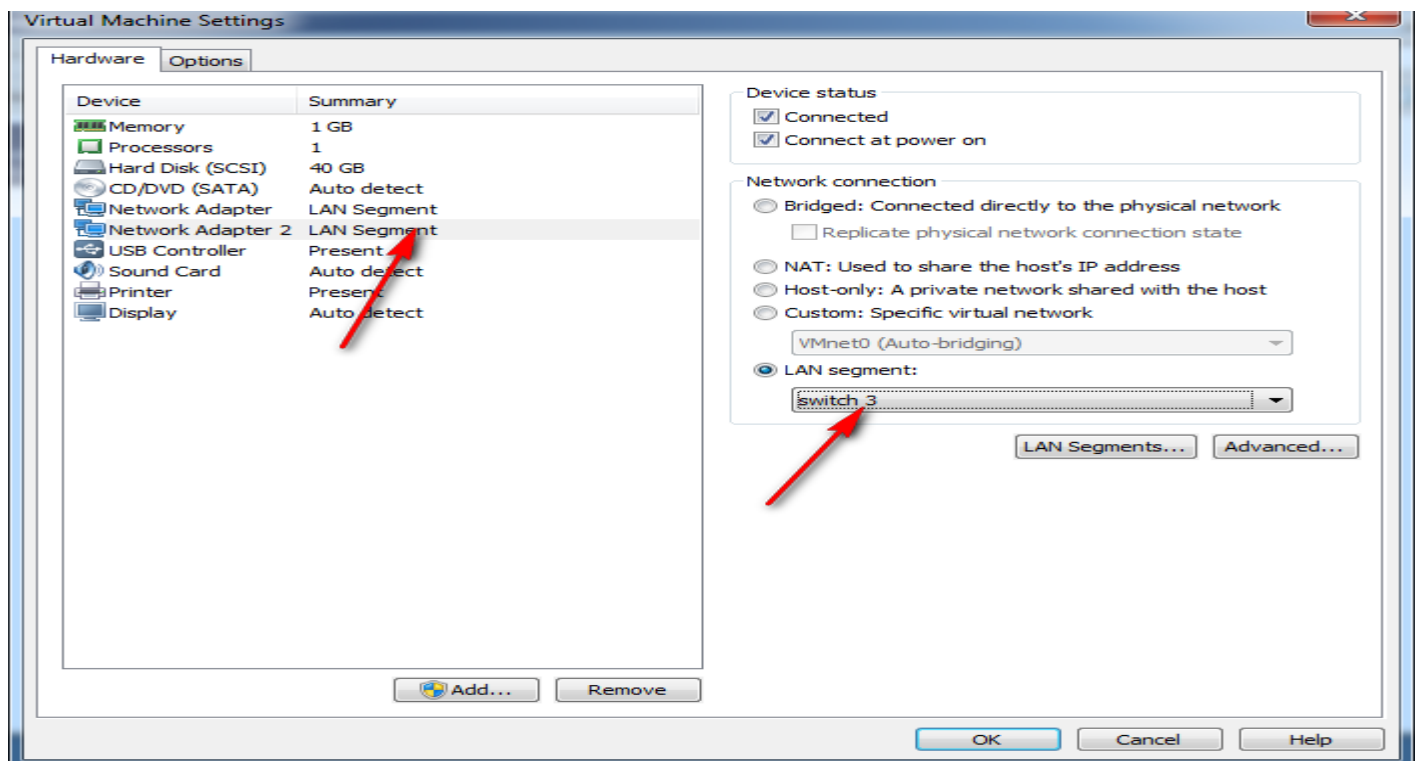
There may be many downsides to static routing, but there are many incidents where a static route is the most logical and efficient method for routing. Static routing is the opposite of dynamic routing, which is a system in which routers will automatically adjust to changes in network topology or traffic. Dynamic routing is used by most modern routers, but some amount of programming is still available for customizing routes if necessary

11.1.1- Static routing in window server 2008

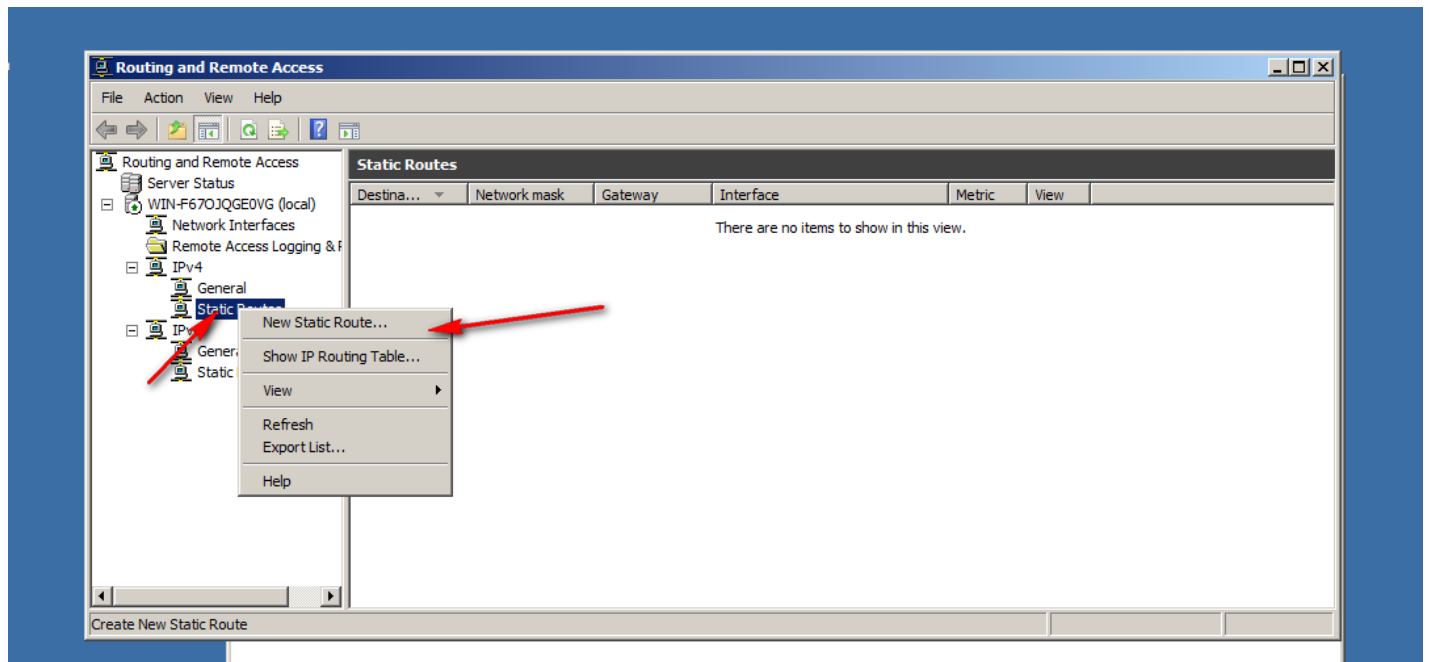
Static routing in window server 2008 تفعيل



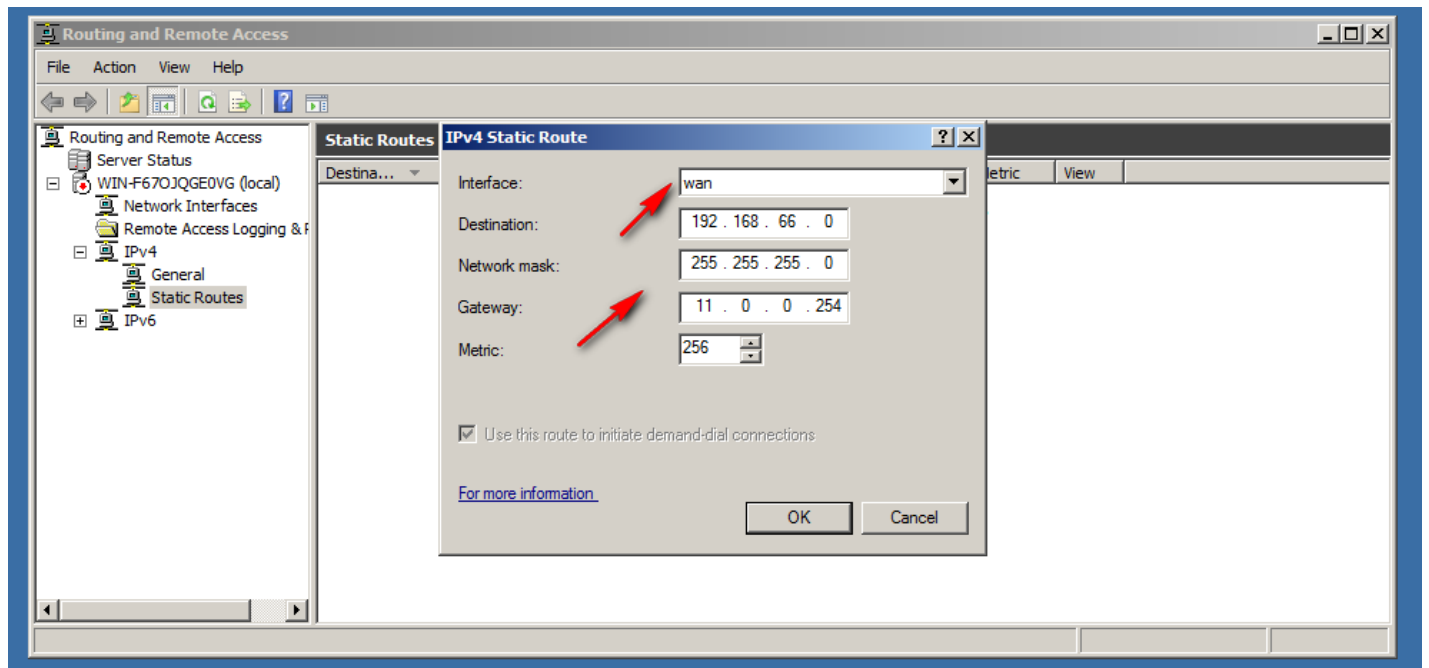
Network adapter switch 2 network adapter2 switch 3



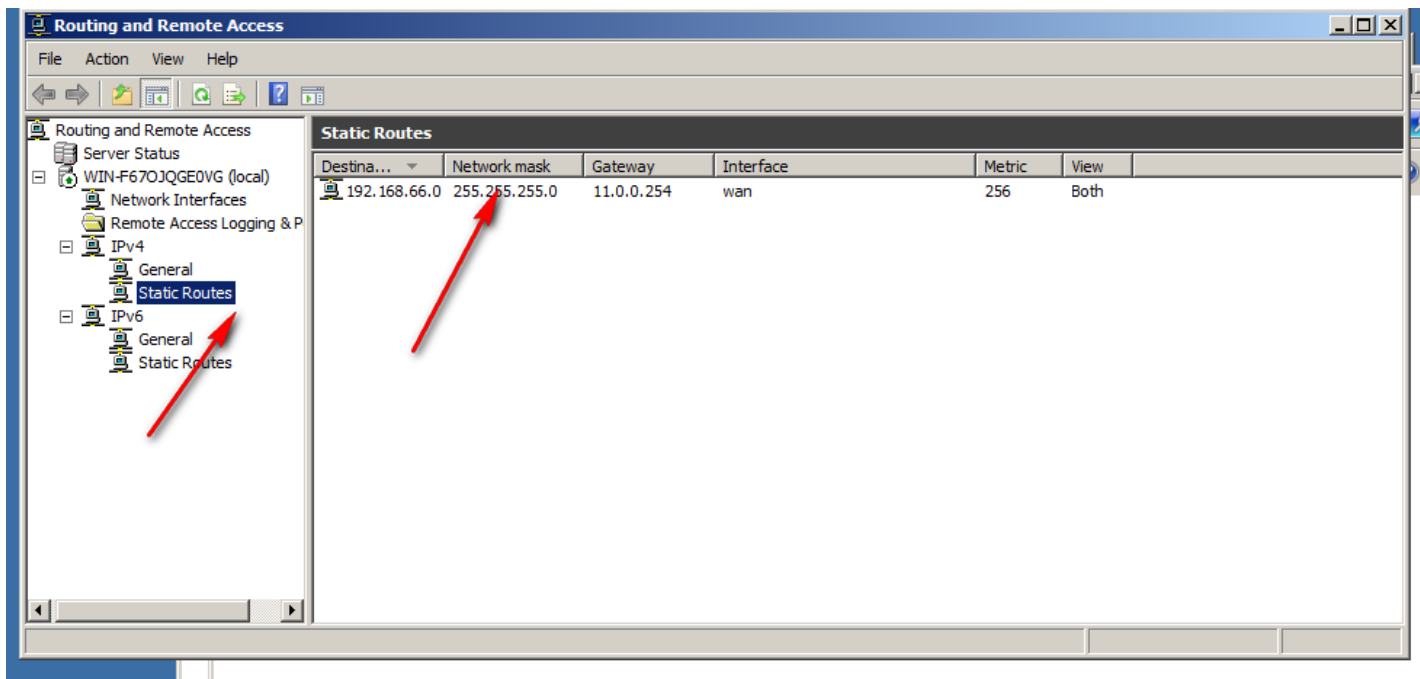
Now on R1



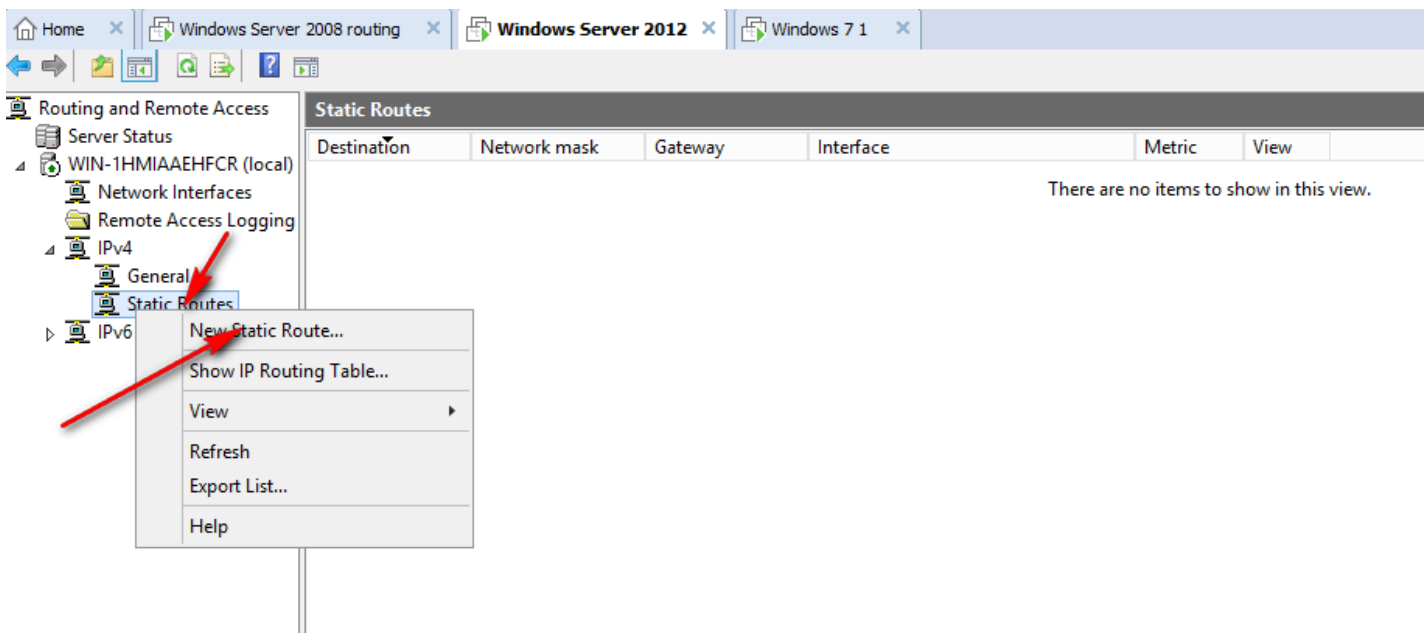
Static route

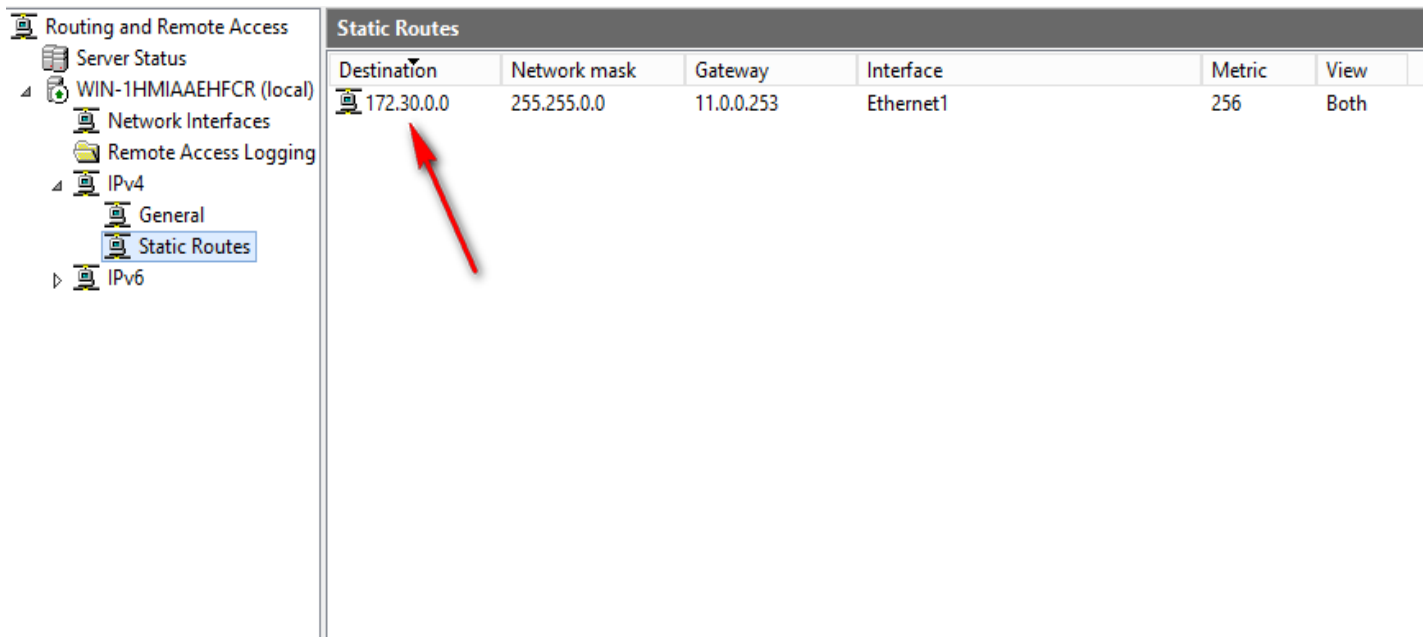


Static route



11.1.2- Static routing in window server 2012





Ping between the virtual pc and real my computer

```
Pinging 192.168.66.20 with 32 bytes of data:
Reply from 192.168.66.20: bytes=32 time<1ms TTL=128
Reply from 192.168.66.20: bytes=32 time<1ms TTL=128
Reply from 192.168.66.20: bytes=32 time<1ms TTL=128
Reply from 192.168.66.20: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.66.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\abdo>
```

11.2- Dynamic routing protocol

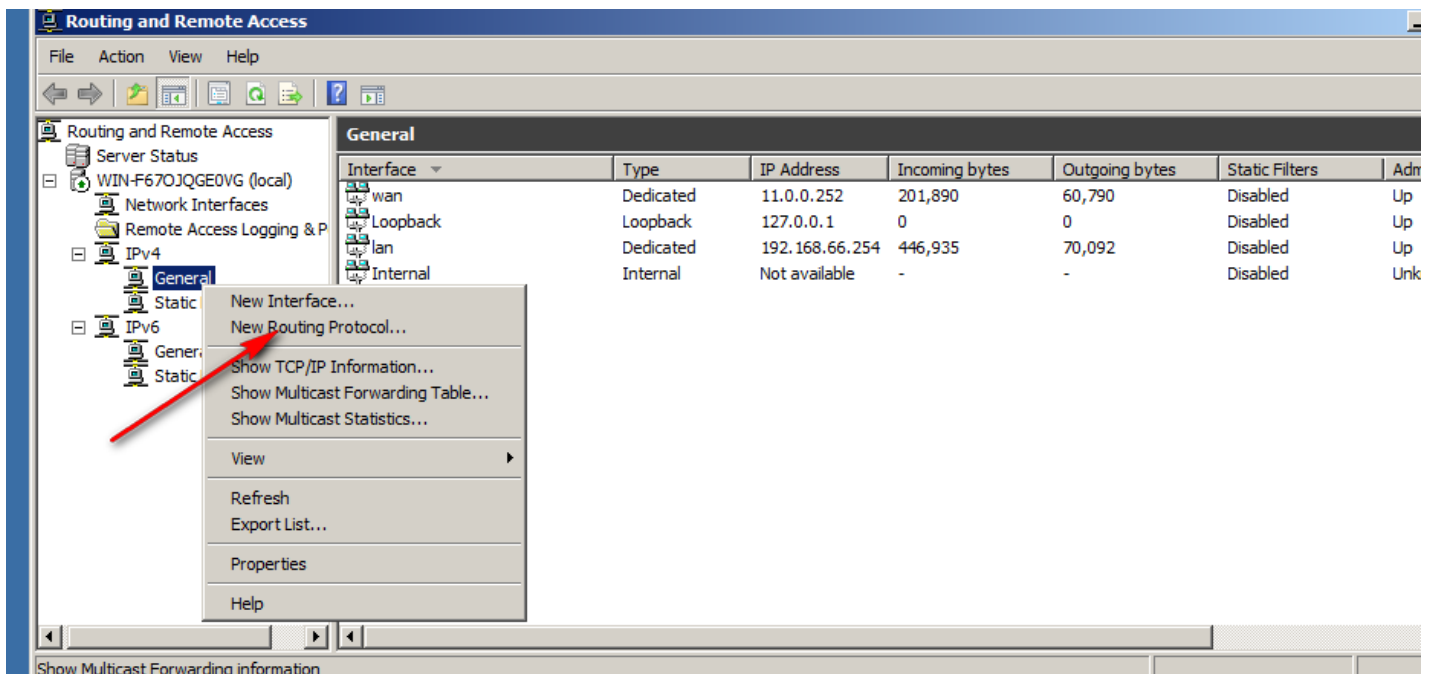
في هذه العملية يقوم مدير الشبكة بتفعيل واحد من routing protocols داخل router وذلك للتعرف علي الشبكات المختلفة.

Dynamic routing use Routing Protocols that dynamically discover network destinations and how to get to them. Dynamic routing allows routing tables in routers to change if a router on the route goes down or if a new network is added.

In Dynamic Routing, Routing Protocols running in Routers continuously exchange network status updates between each other as broadcast or multicast. With the help of routing updates messages sent by the Routing Protocols, routers can continuously update the routing table when ever a network topology change happens.

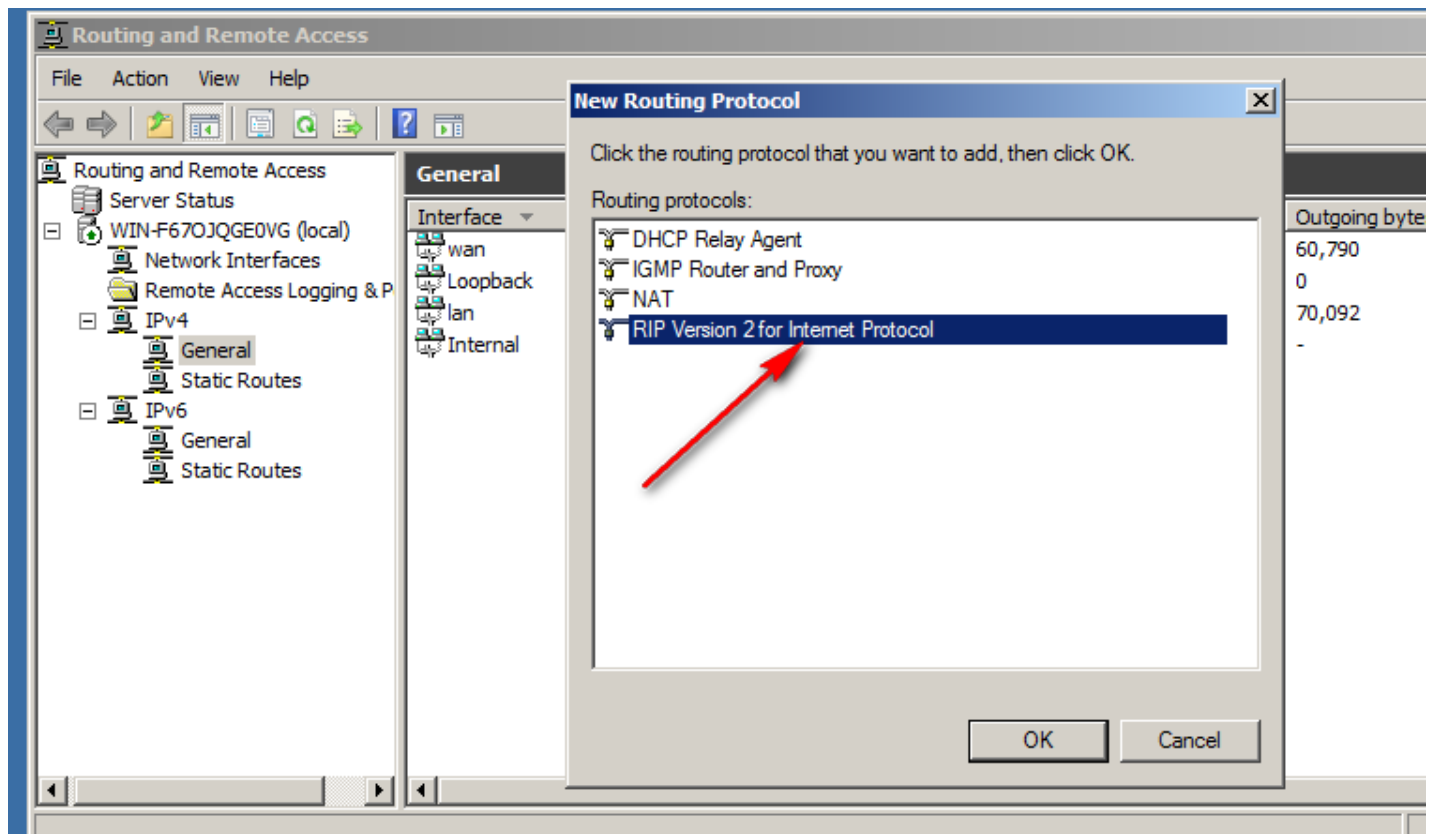
Examples of Routing Protocols are Routing Information Protocol (RIP), Enhanced Interior Gateway Routing Protocol (EIGRP) and Open Shortest Path First (OSPF).

11.2.1- Dynamic routes in windows server 2008



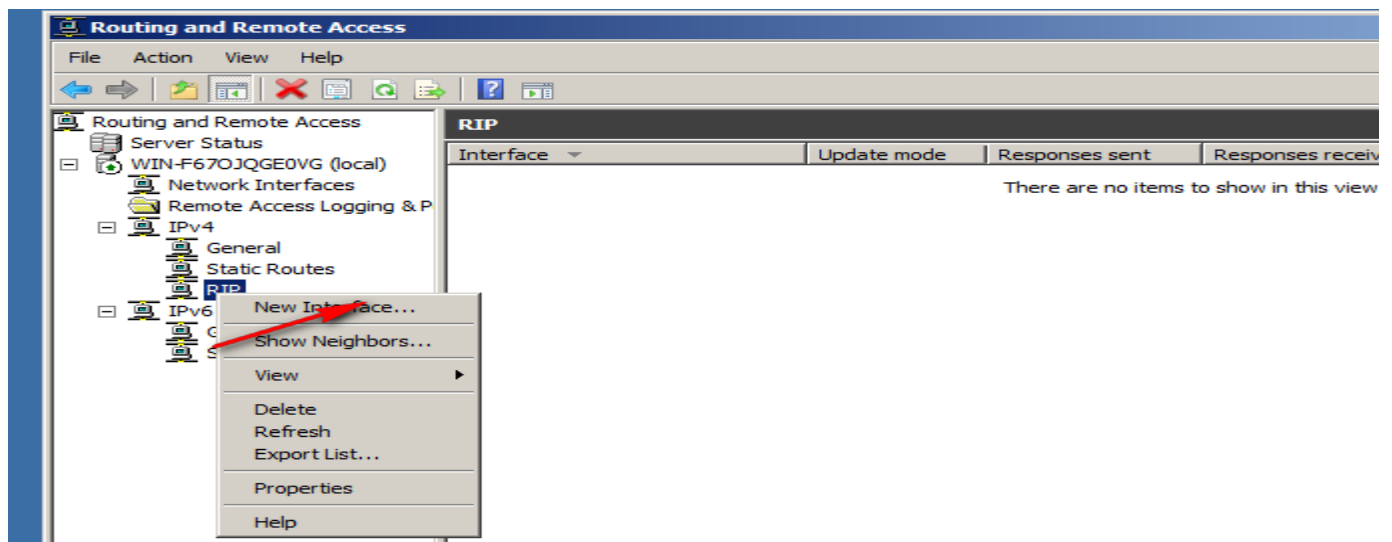
Rip version 2

تفعيل بروتوكول Rip version 2

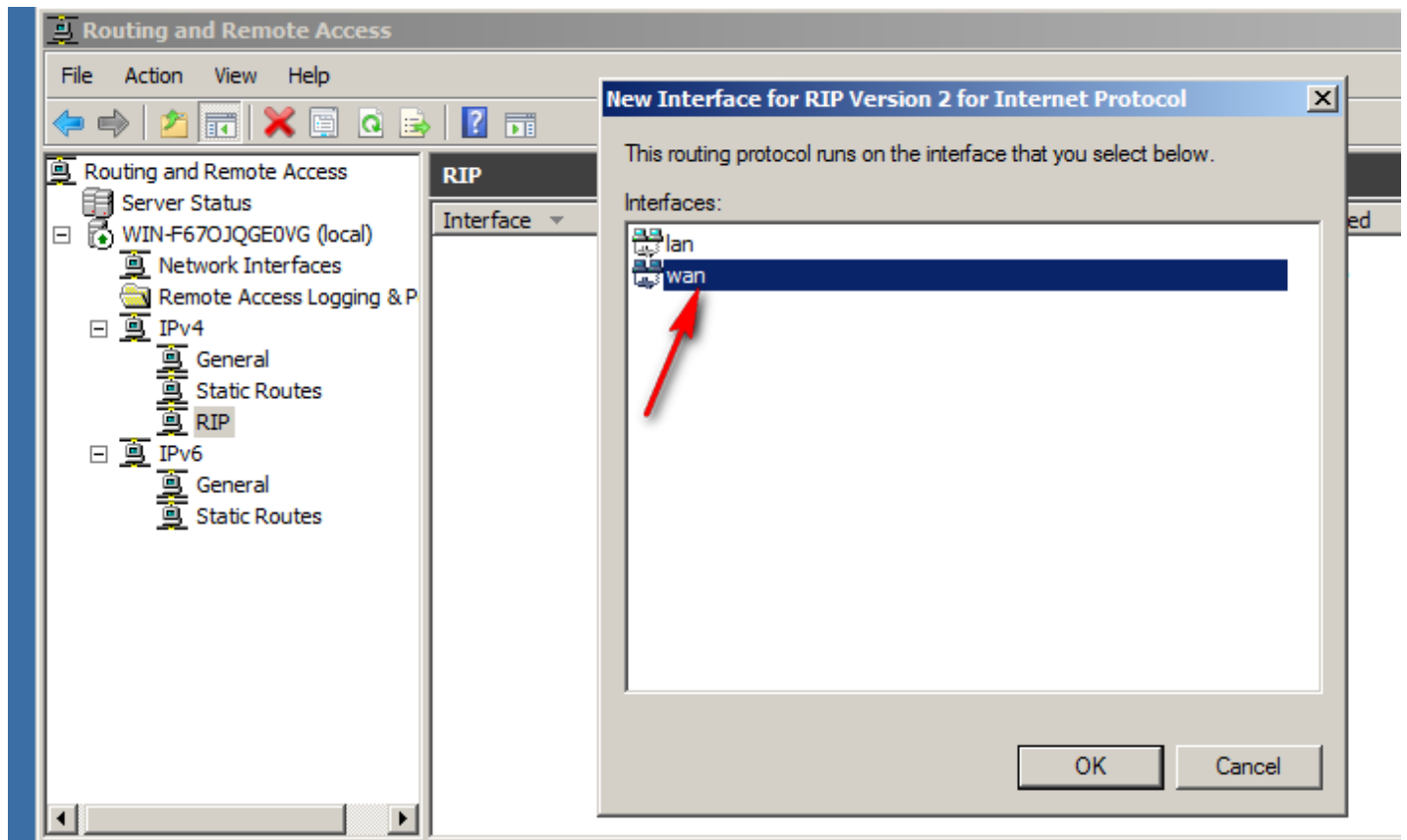


New interface

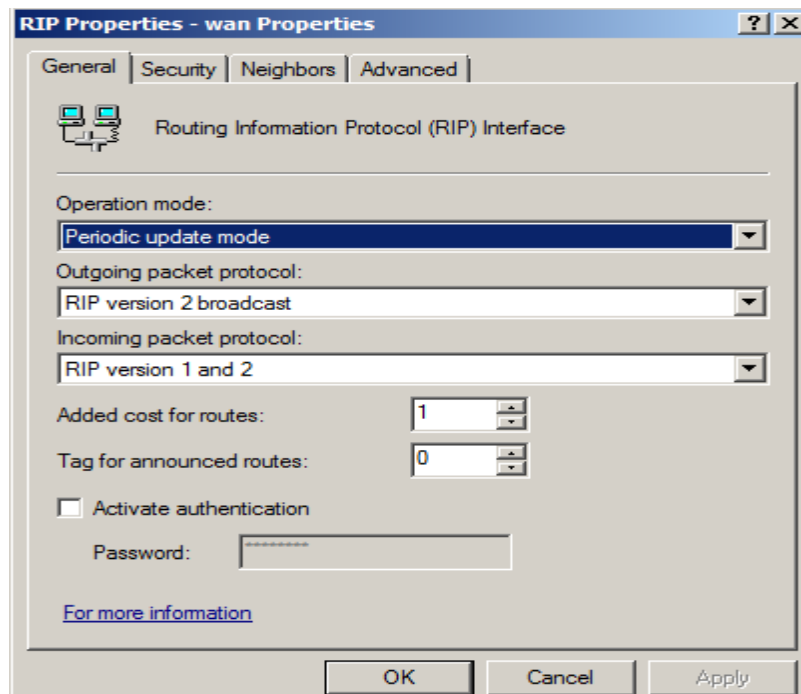
تقديم كرت شبكة



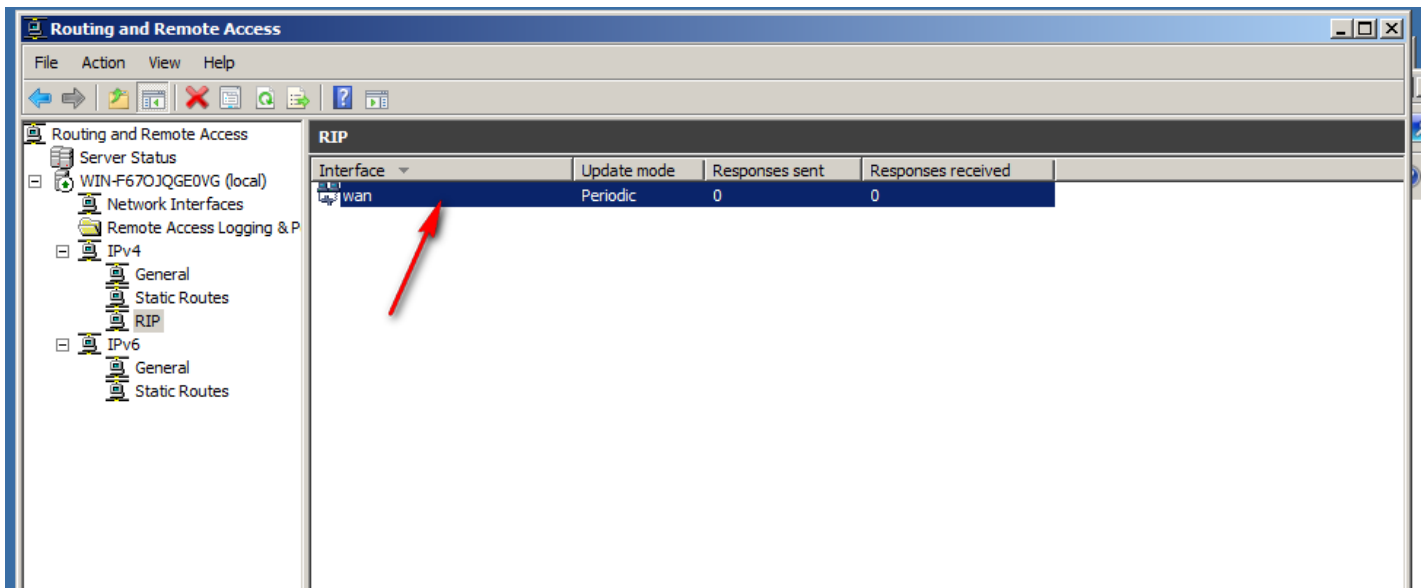
Add Wan interface



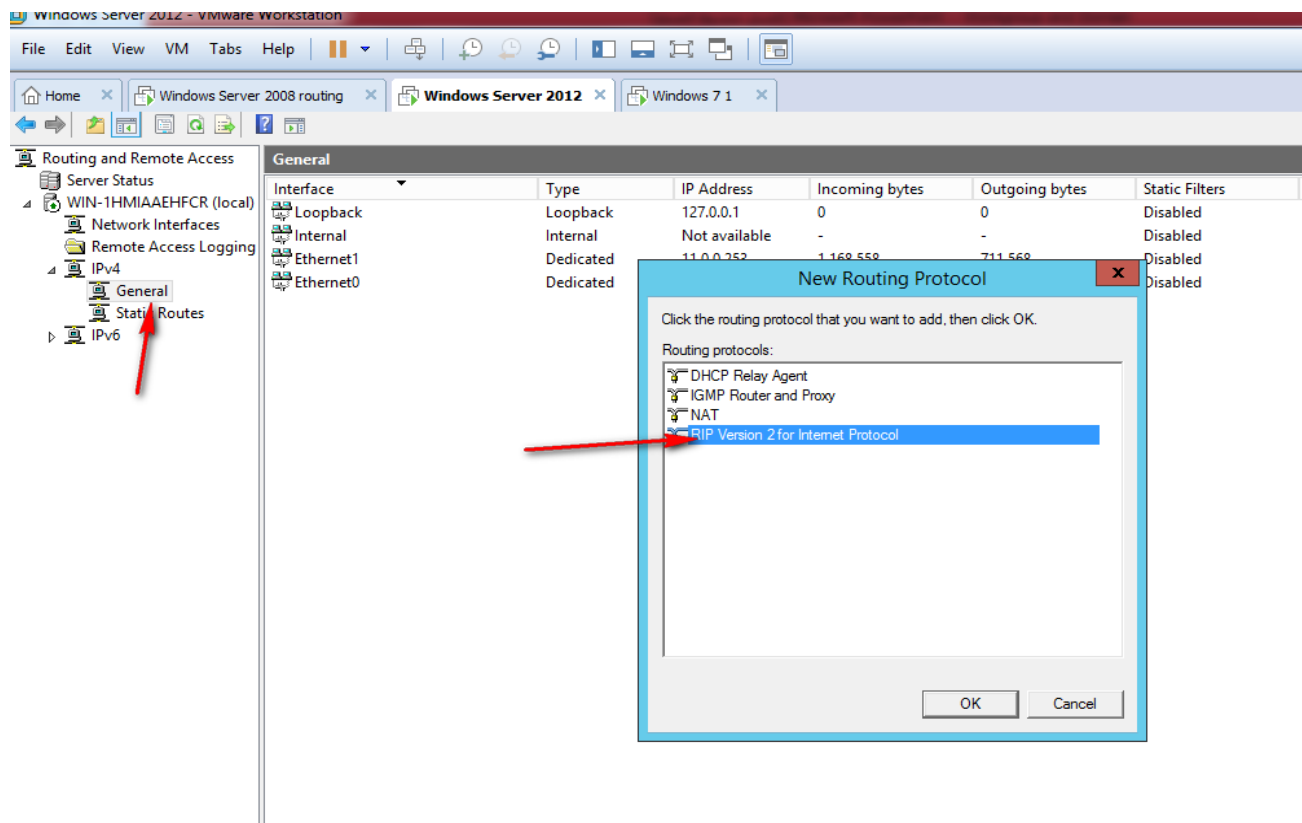
Choice rip

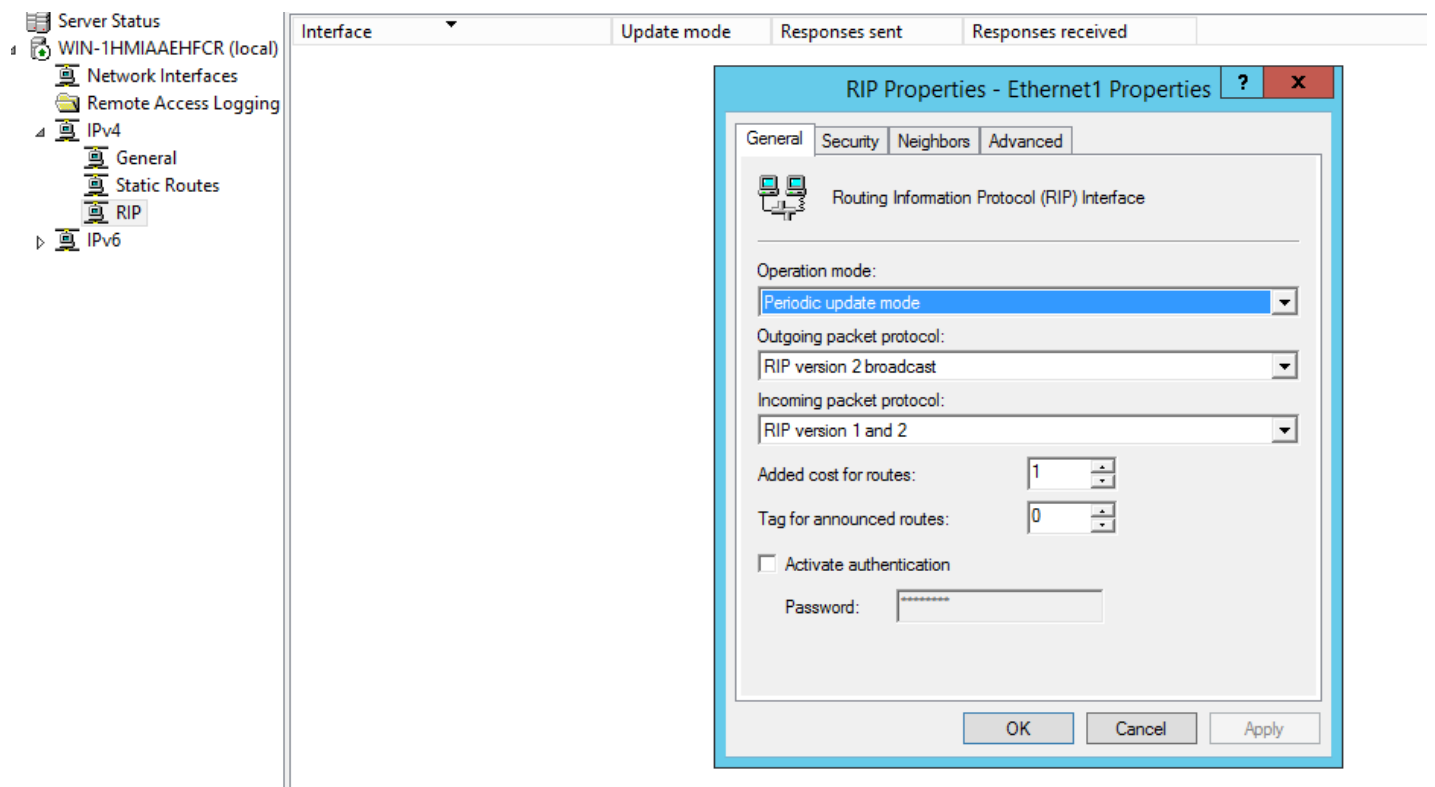


Rip

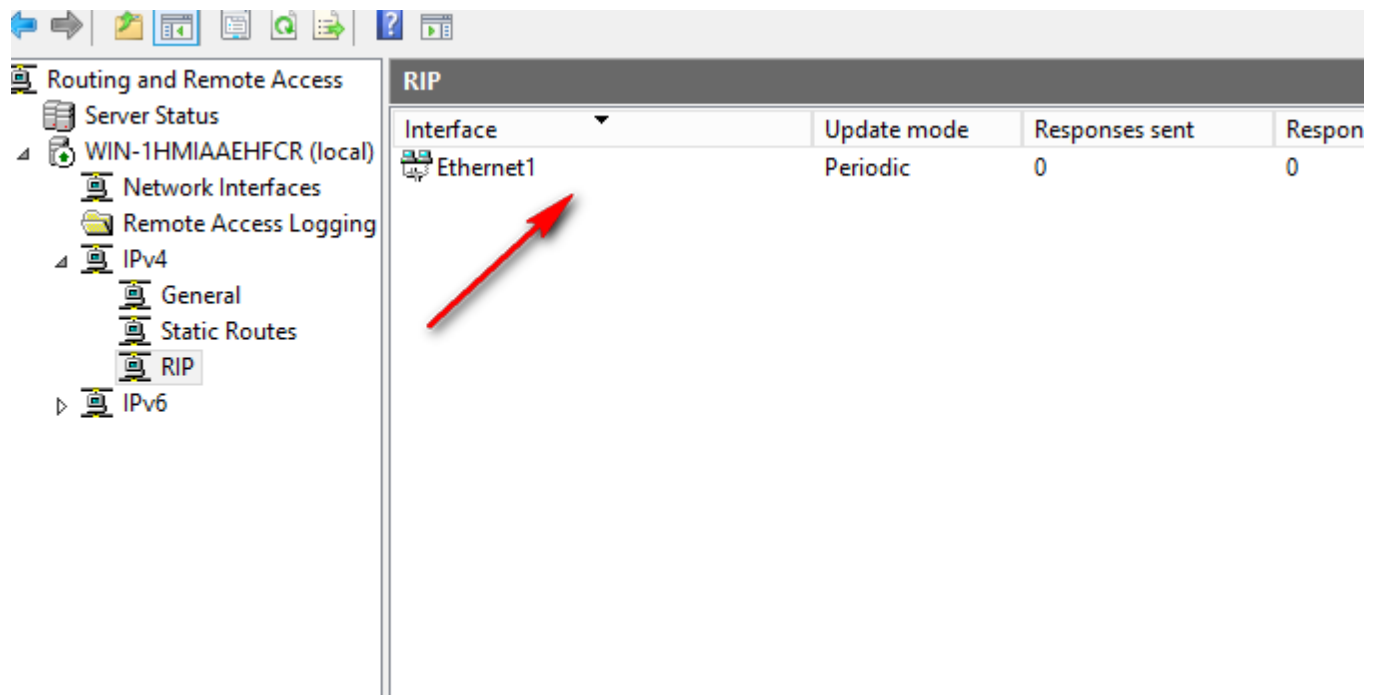


11.2.2- Dynamic routes in windows server 2012

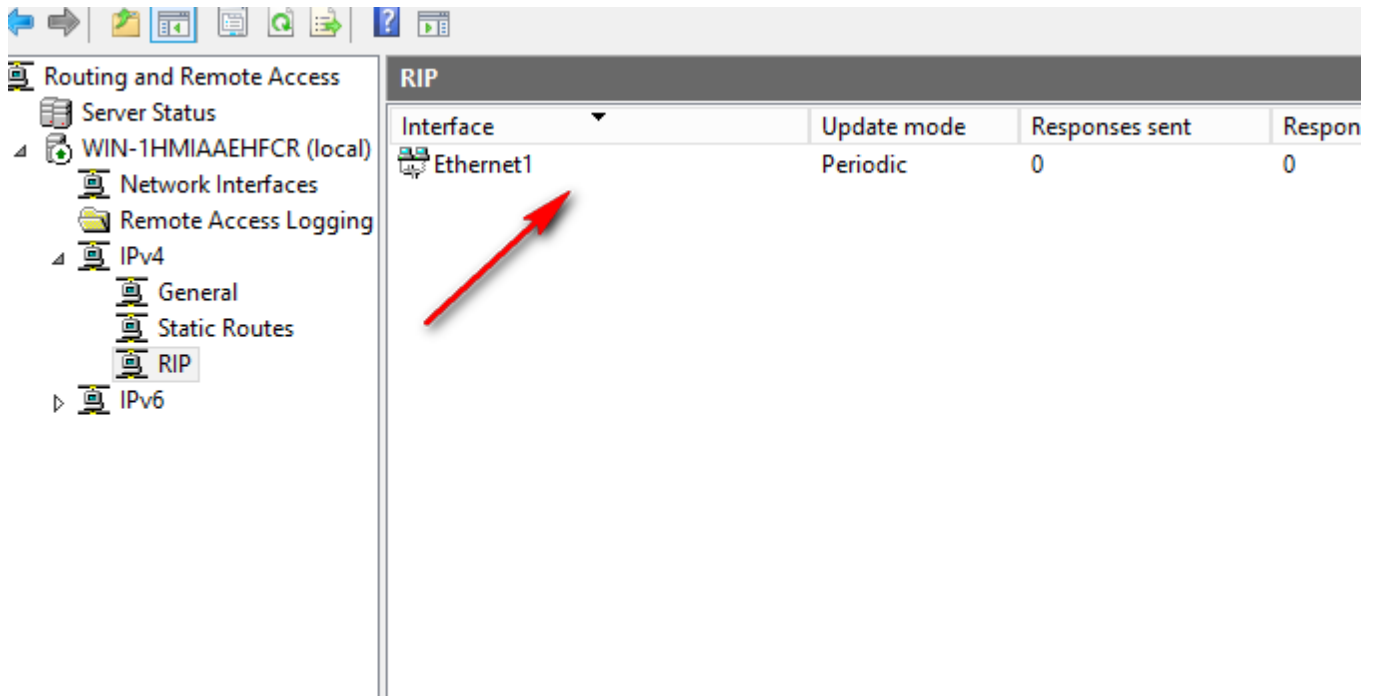




Add rip protocols between routers interface



Add rip protocols between routers interface



Ping between the virtual pc and real my computer

```
Pinging 192.168.66.20 with 32 bytes of data:
Reply from 192.168.66.20: bytes=32 time<1ms TTL=128
Reply from 192.168.66.20: bytes=32 time<1ms TTL=128
Reply from 192.168.66.20: bytes=32 time<1ms TTL=128
Reply from 192.168.66.20: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.66.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\abdo>
```

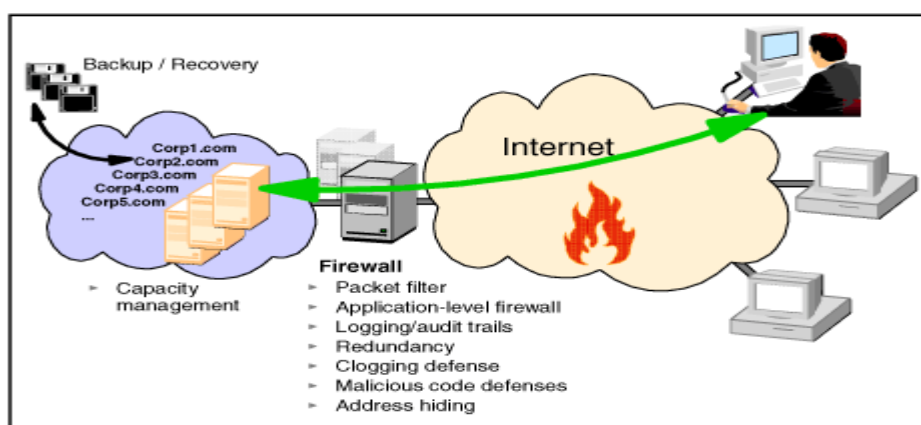

12-Packet filtering and IIS server

وهي عملية التحكم في البيانات الداخلة والخارجة من الشبكة أيضا هو تقليل أو إزالة وجود الاتصالات الشبكية غير المرغوب فيها والسماح في الوقت نفسه للاتصالات «الشرعية» أن تنتقل بحرية دخل الشبكة

Routing and Remote Access supports IP packet filtering, which specifies which type of traffic is allowed into and out of the router. The packet filtering feature is based on exceptions. You can set packet filters per interface and configure them to do one of the following:

Pass through all traffic except packets prohibited by filters.

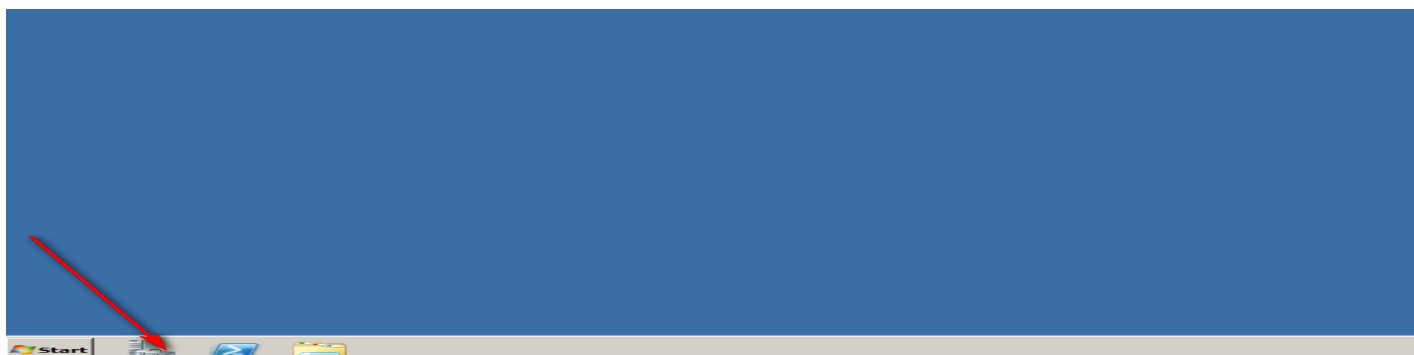
Discard all traffic except packets allowed by filters.



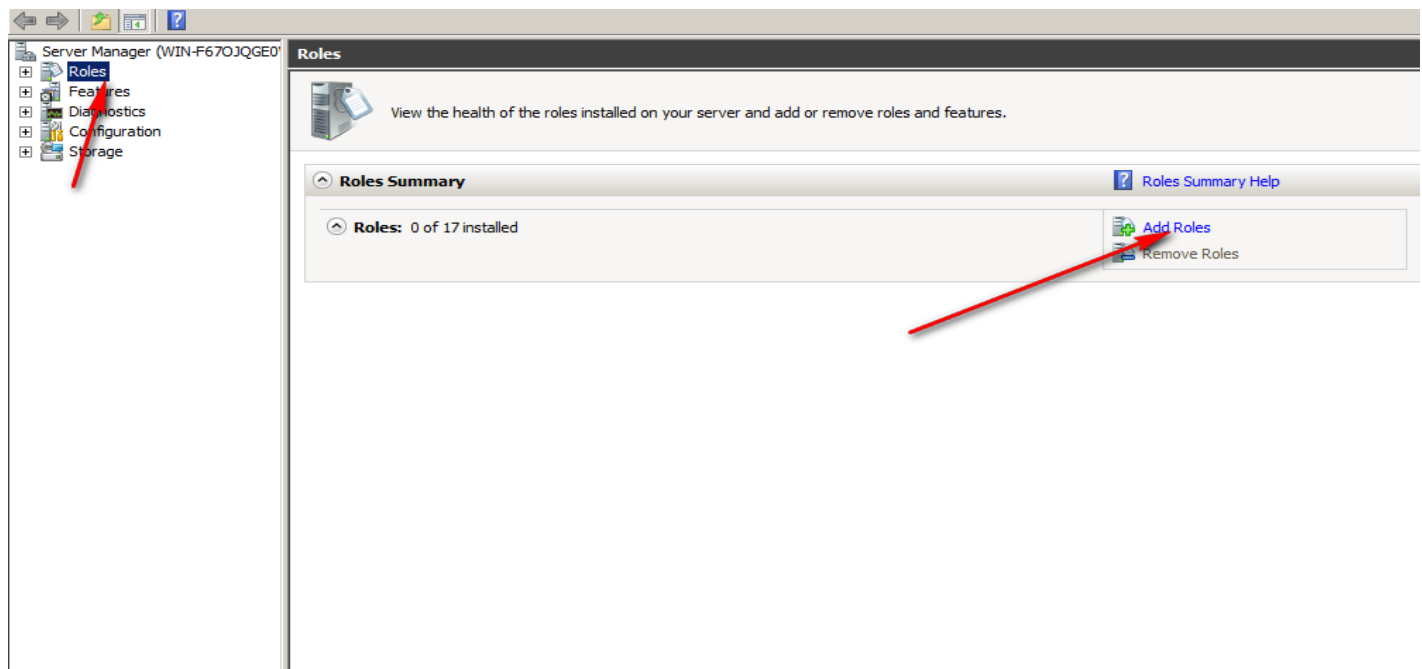
12.1- packet filter and IIS in windows server 2008

لتفعيل عملية تصفية البيانات الداخلة والخارج من الخادم يجب علينا تحميل routing and remote access

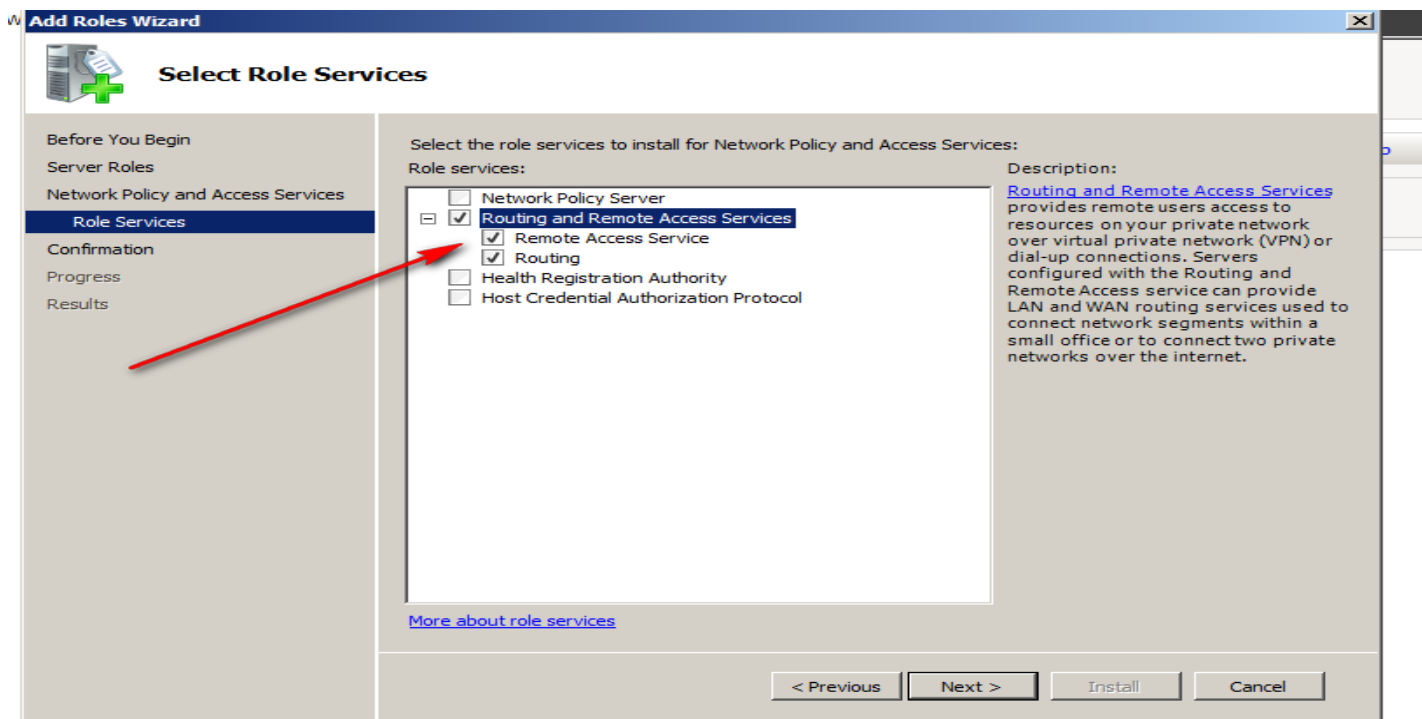
To make packet filter You have to Install routing and remote access on Windows server 2008



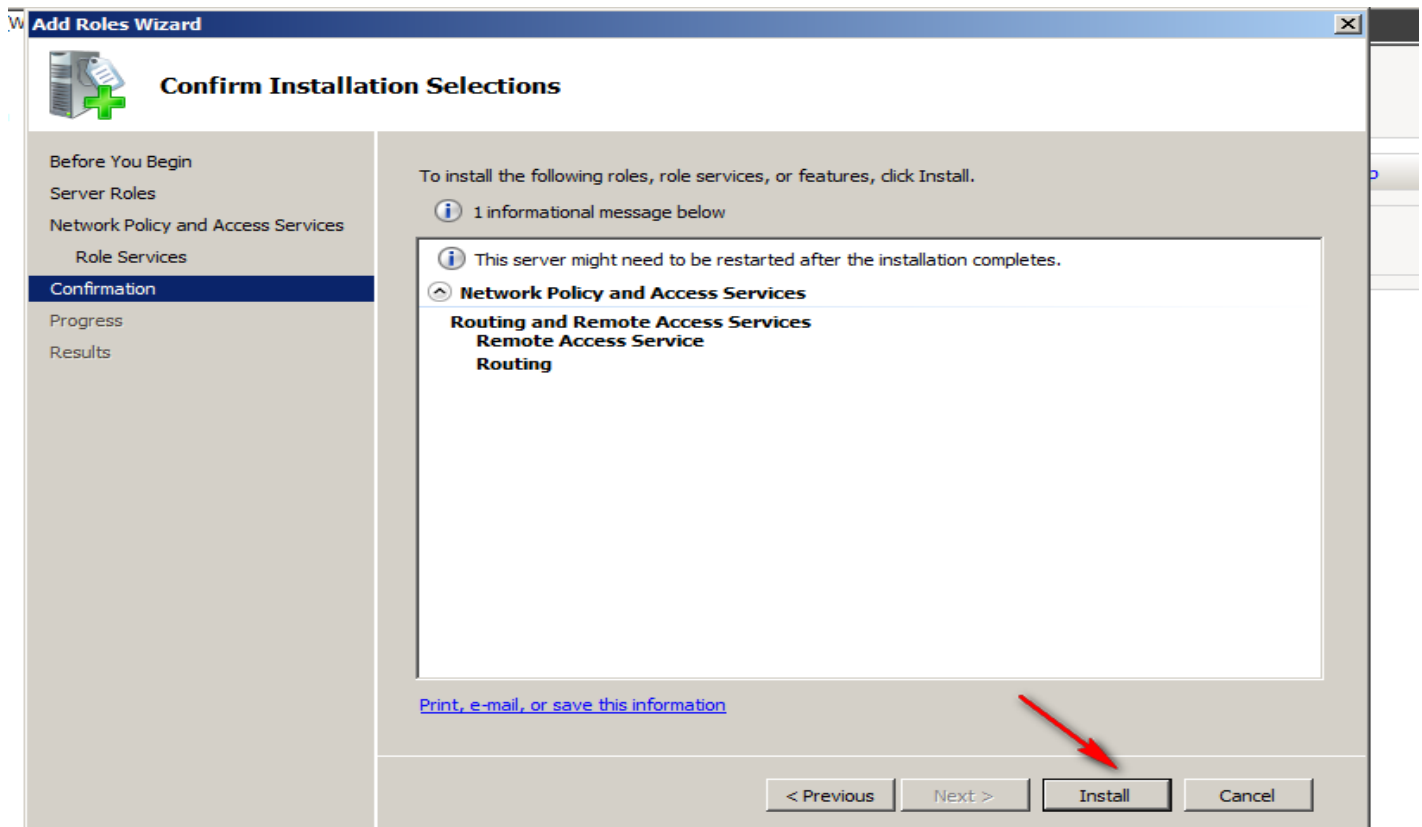
Install routing role on windows server 2008



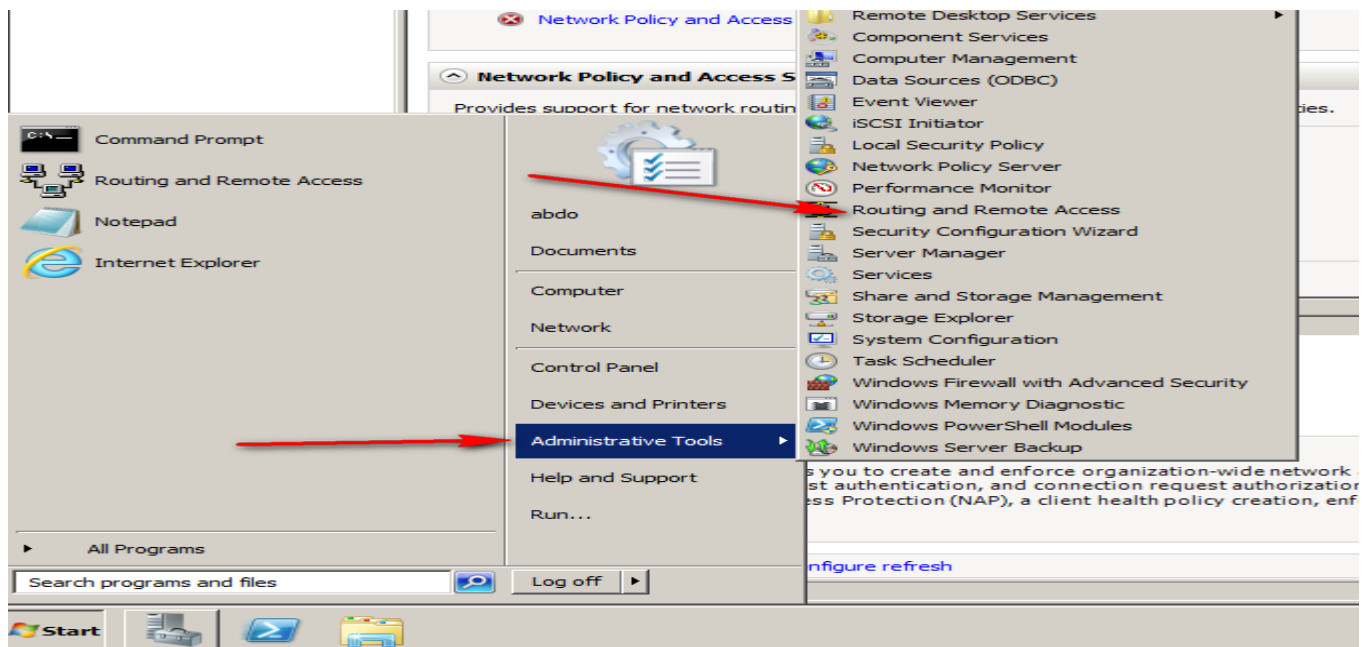
Routing and remote access services



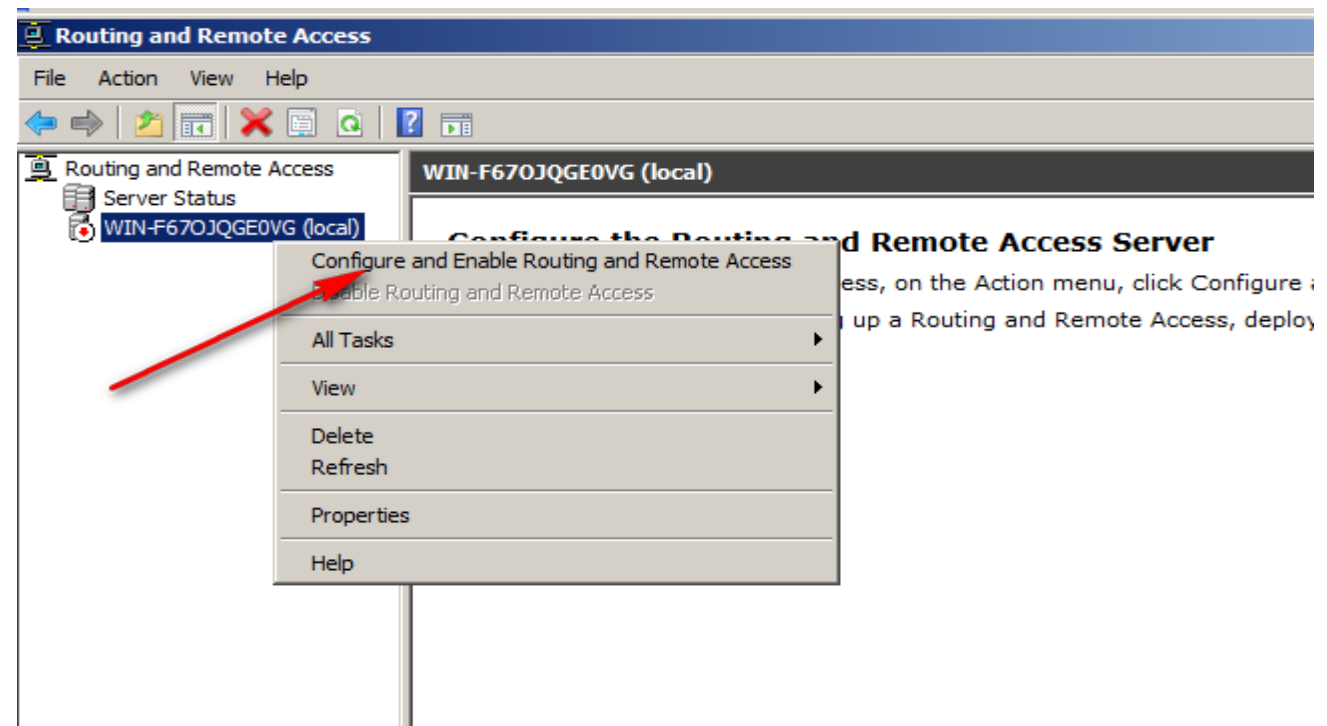
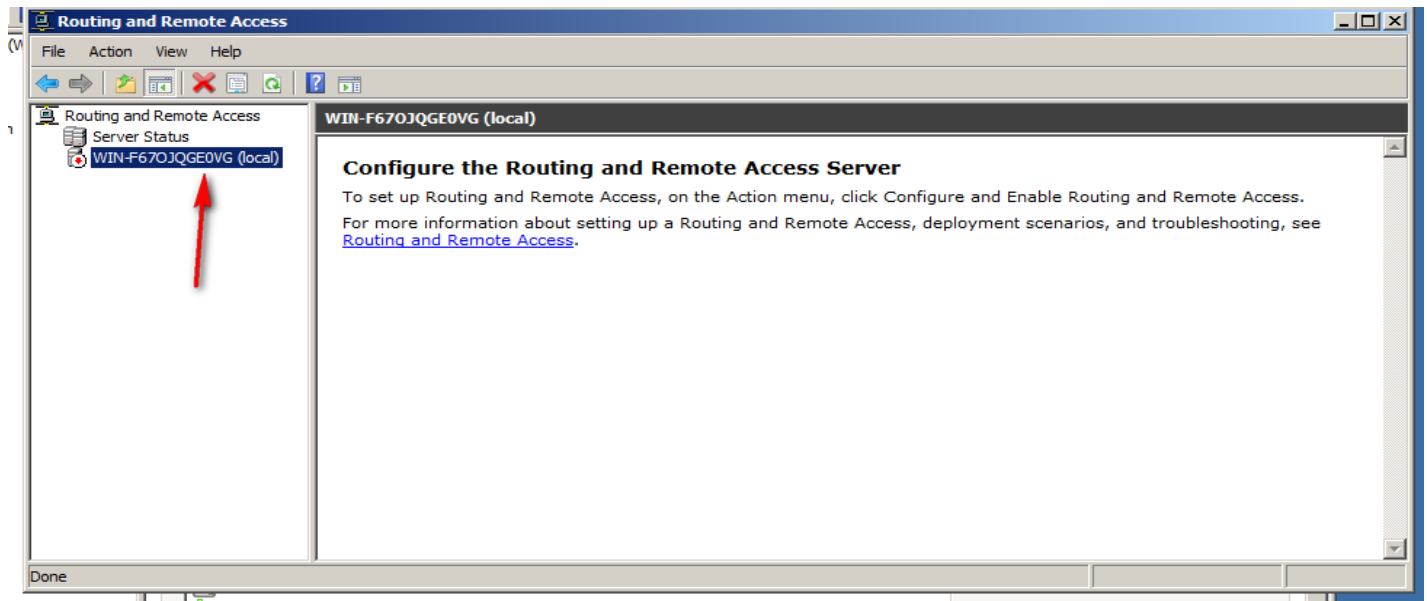
Install role



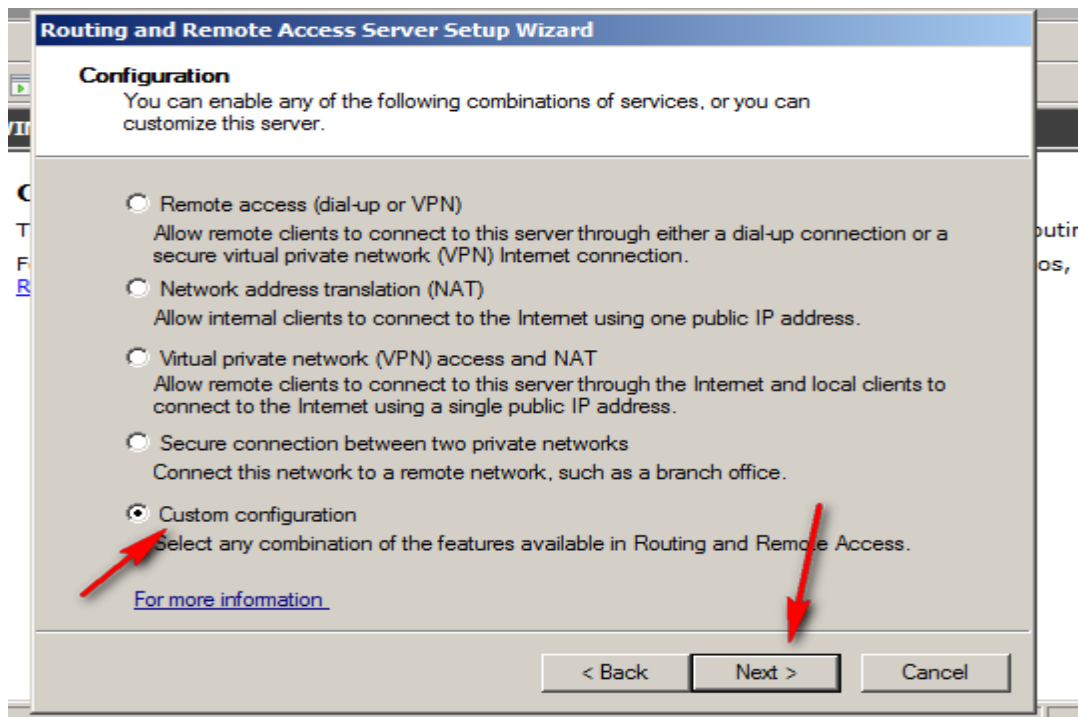
Open routing and remote access



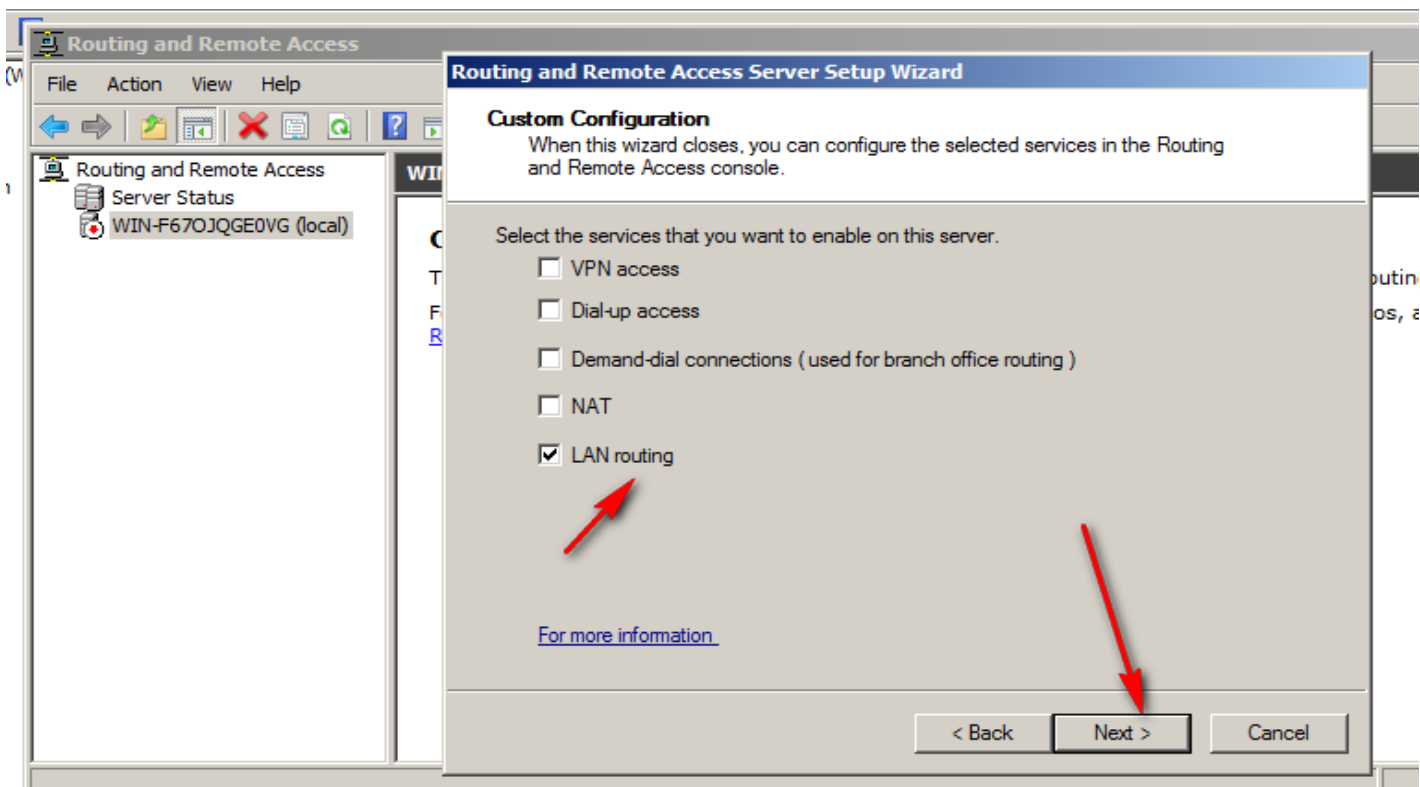
Enable the routing on server



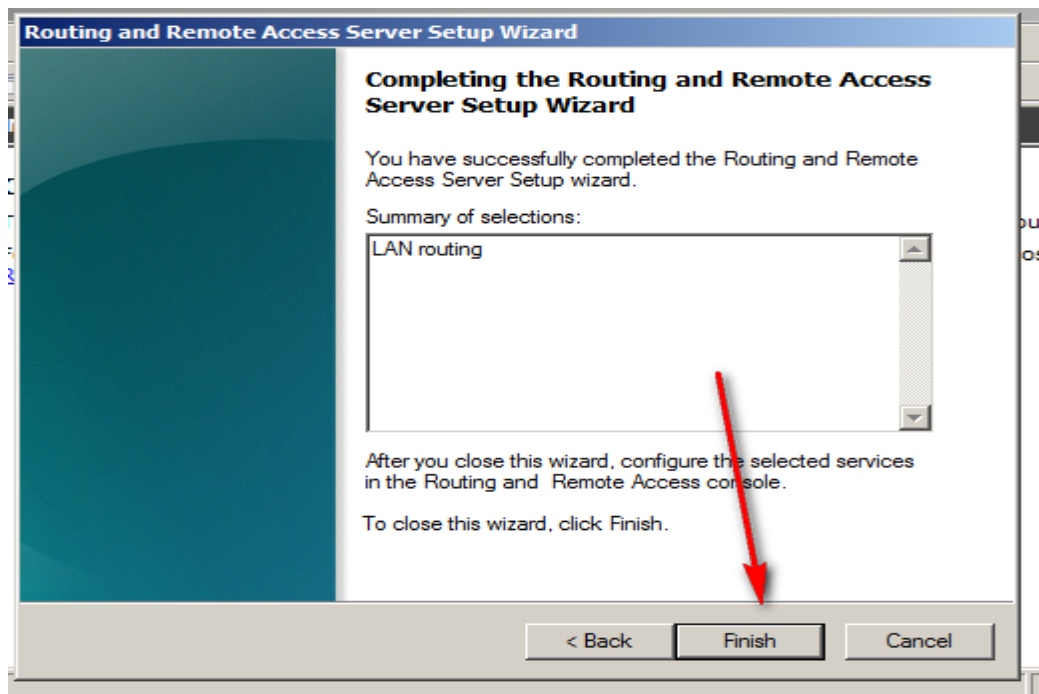
Choice custom configuration



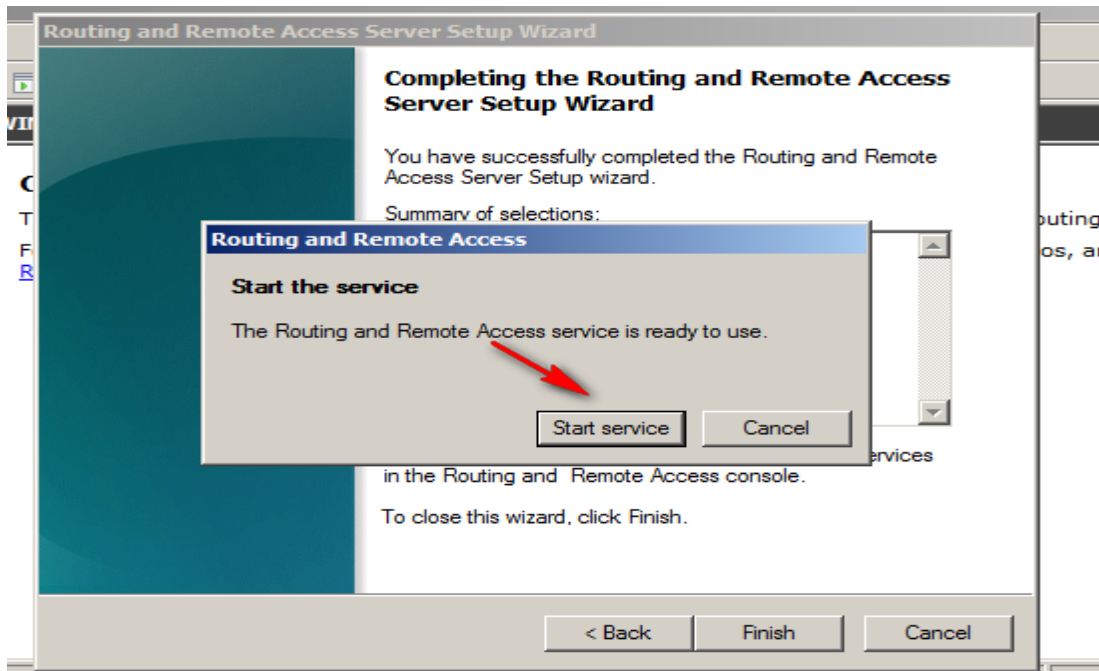
LAN routing



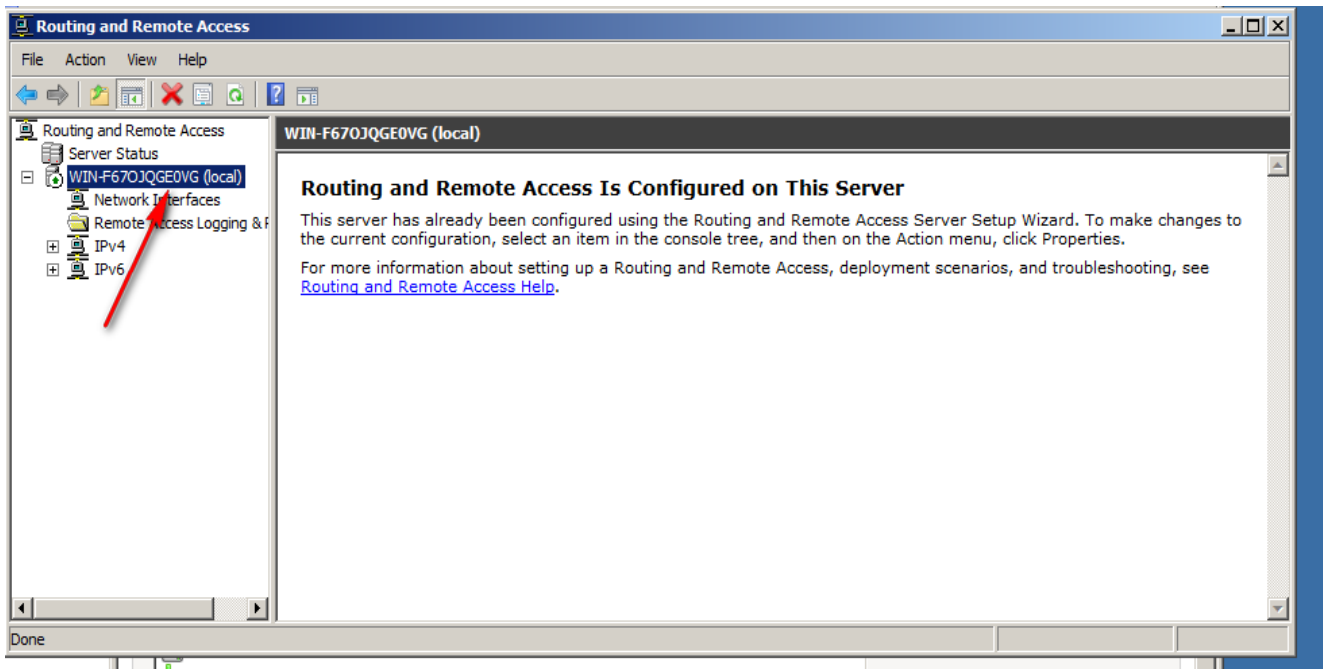
Press finish



Start the services



Now routing and remote access ready

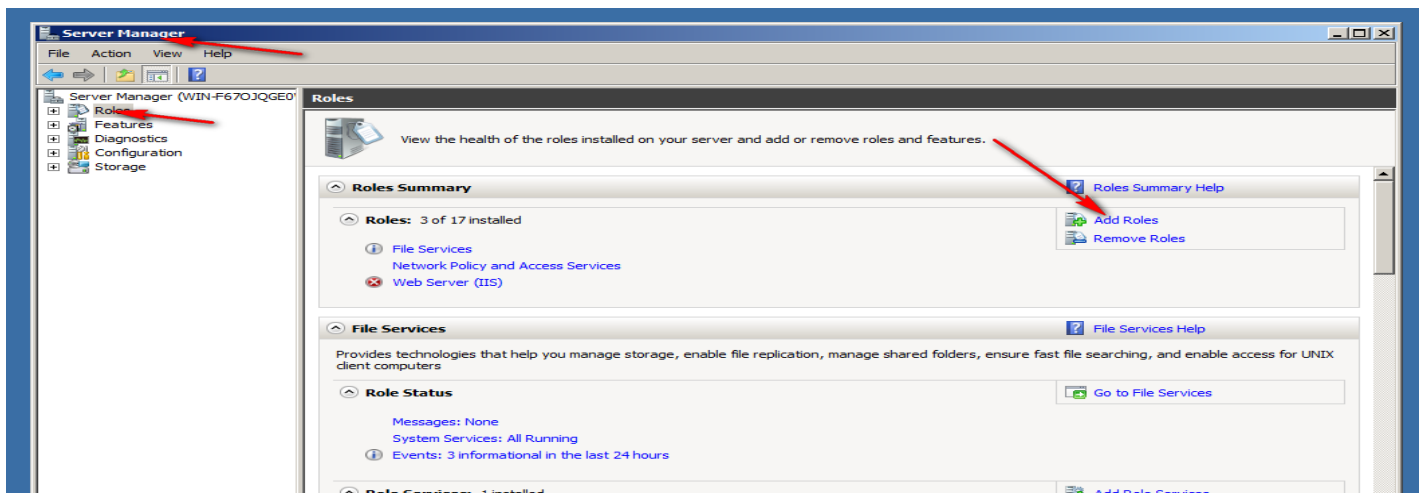


الآن سوف نقوم بعمل مثال فعلا على كيفية التحكم في البيانات، ولتطبيق هذا المثال بشكل فعلي يجب علينا تنزيل IIS

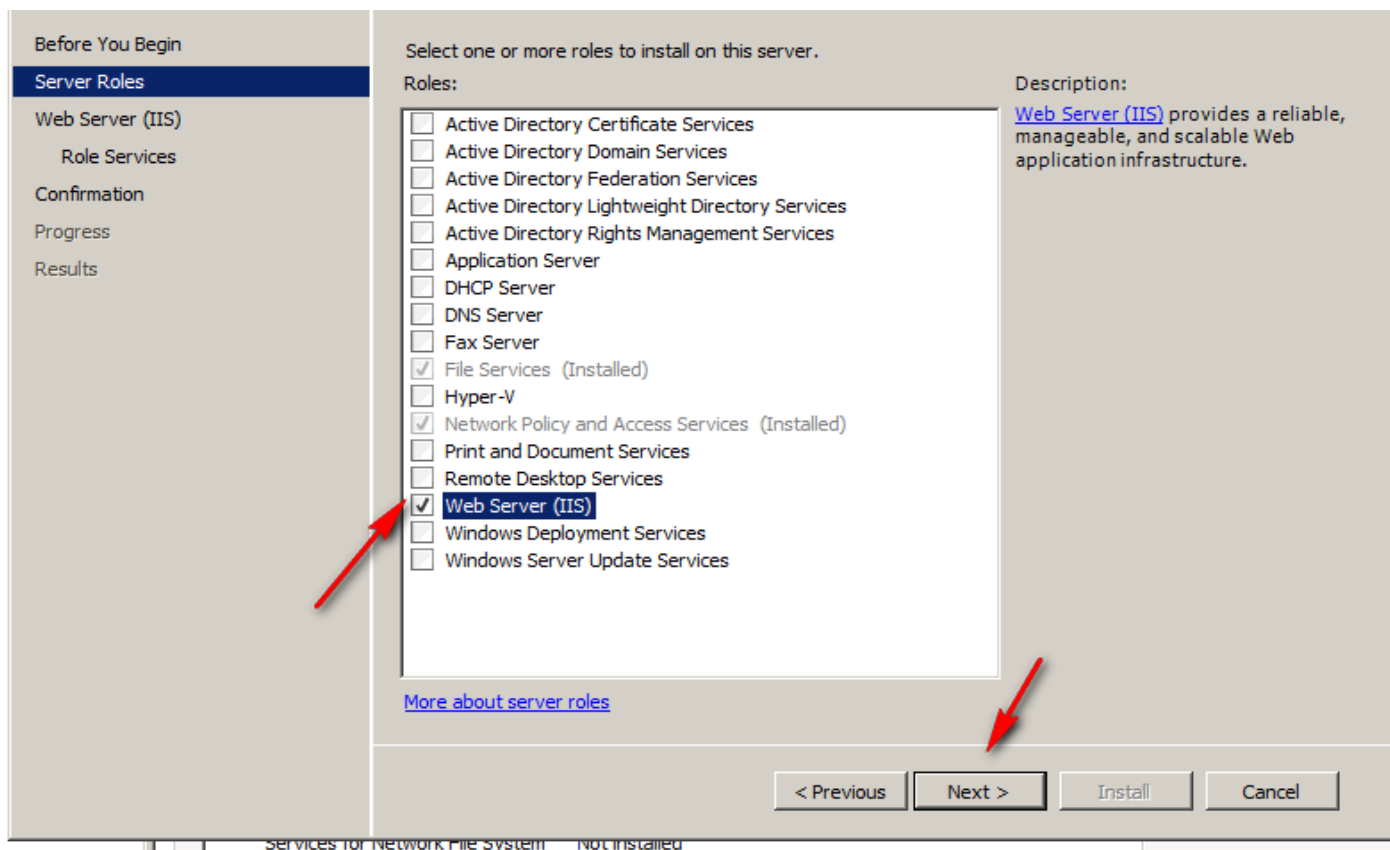
Now we will make simple senior to clarify how I can make filter traffic to control the data through the server, so we need install IIS on server to make internal web site for test the packet filter.

Now we will make internal web site to test packet filter so we must install IIS on windows server 2008

تحميل IIS

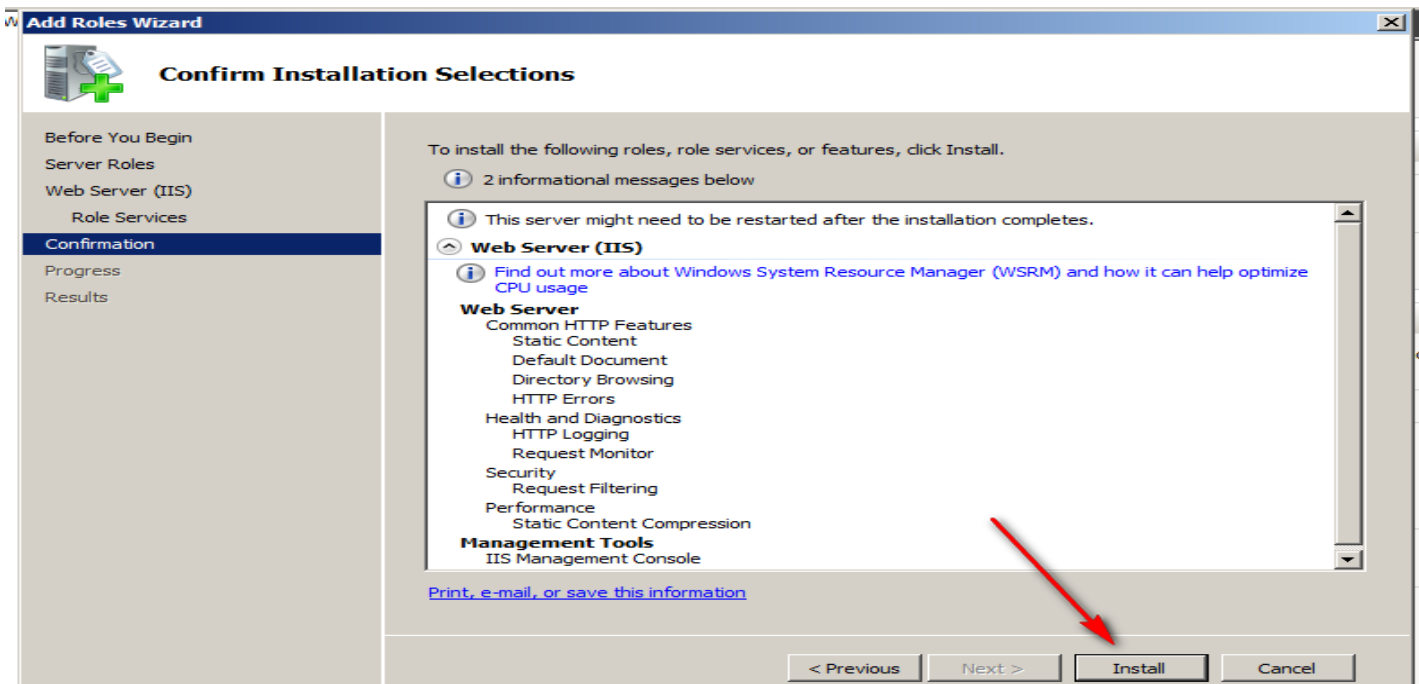
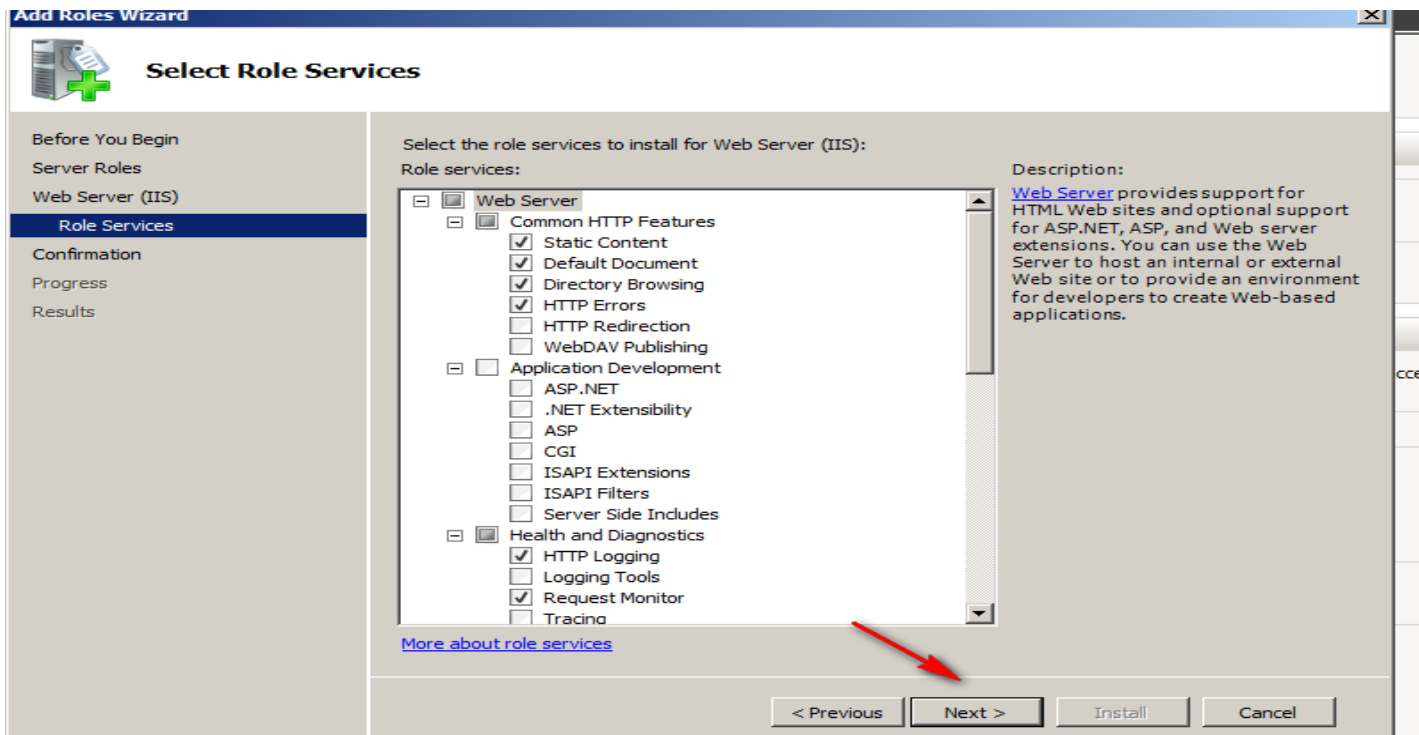


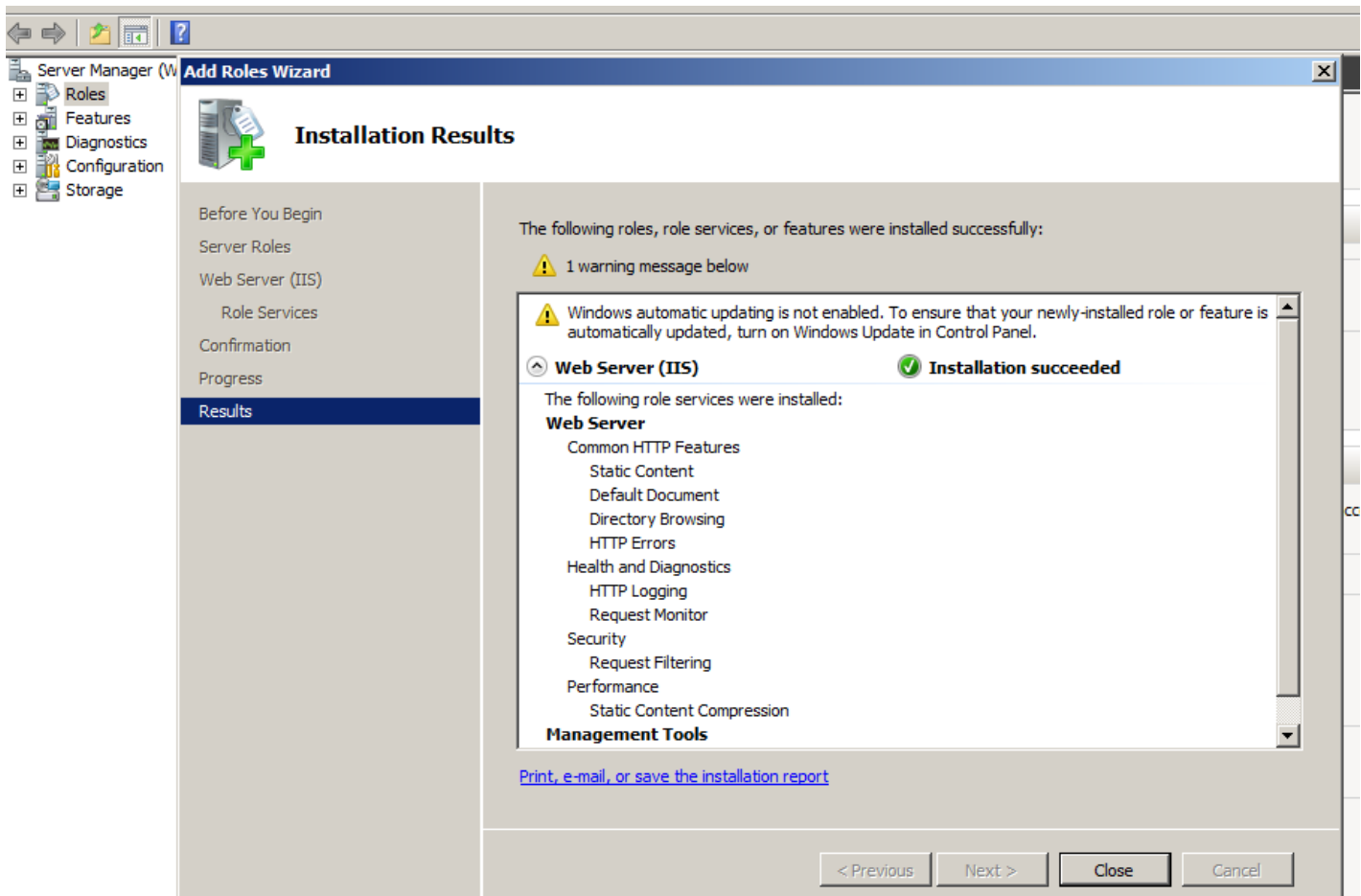
Choice web server (IIS)



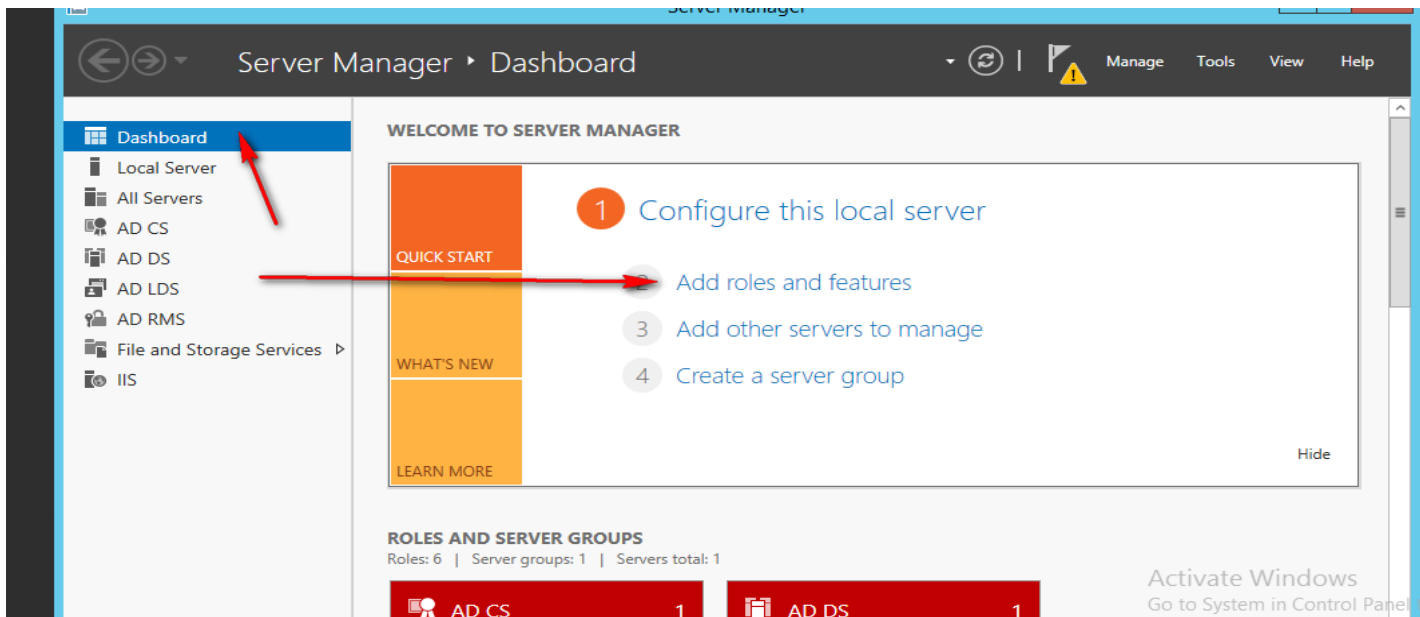
Press Next





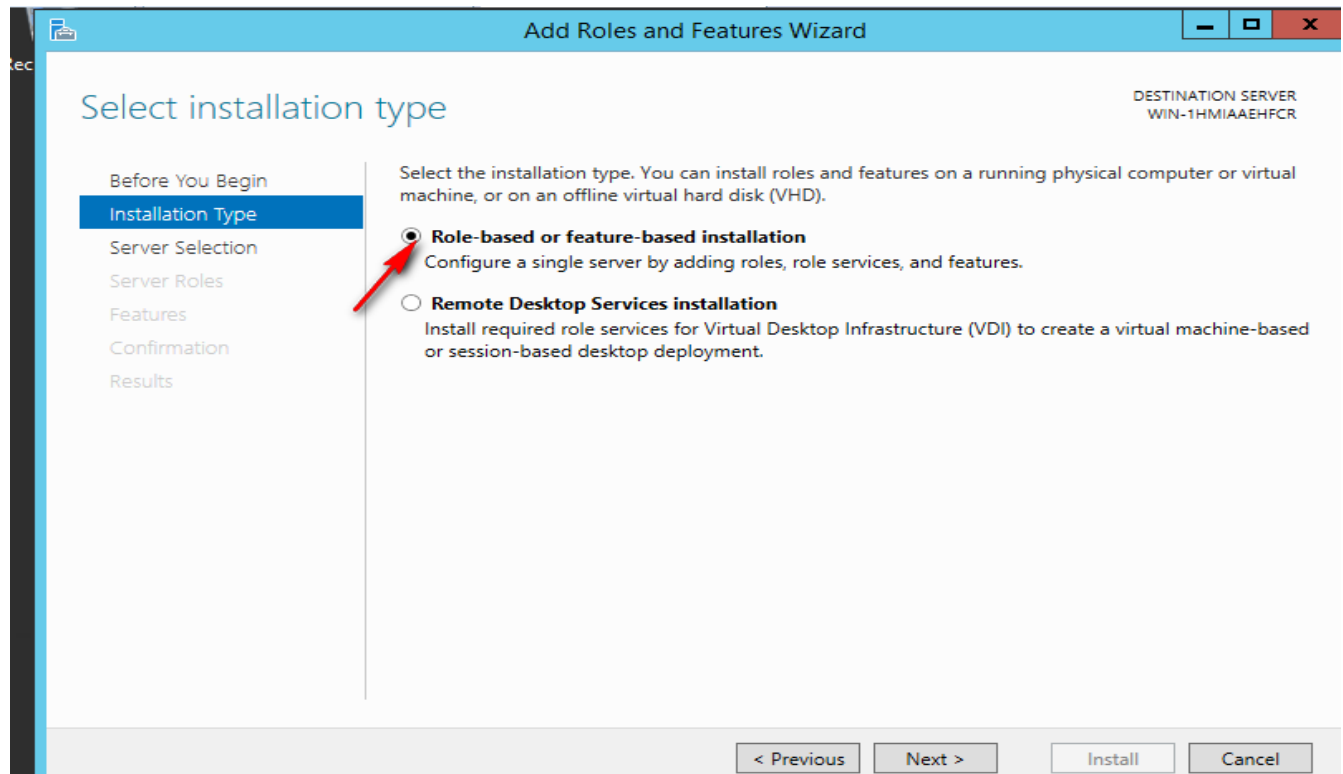


Install IIS on windows server 2012

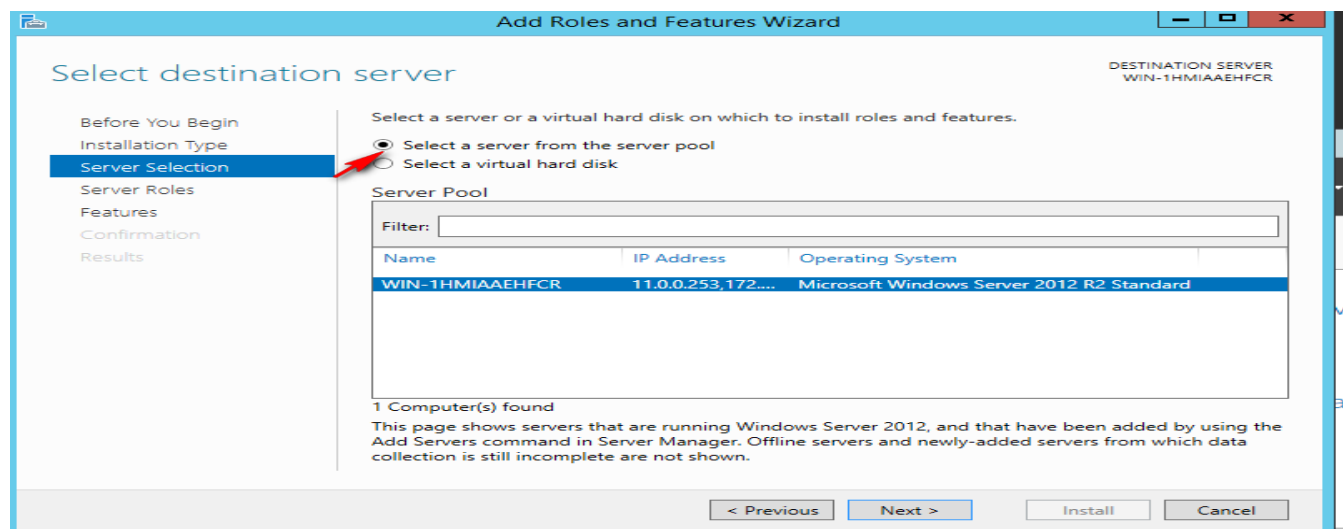


12.2- packet filter and IIS in windows server 2012

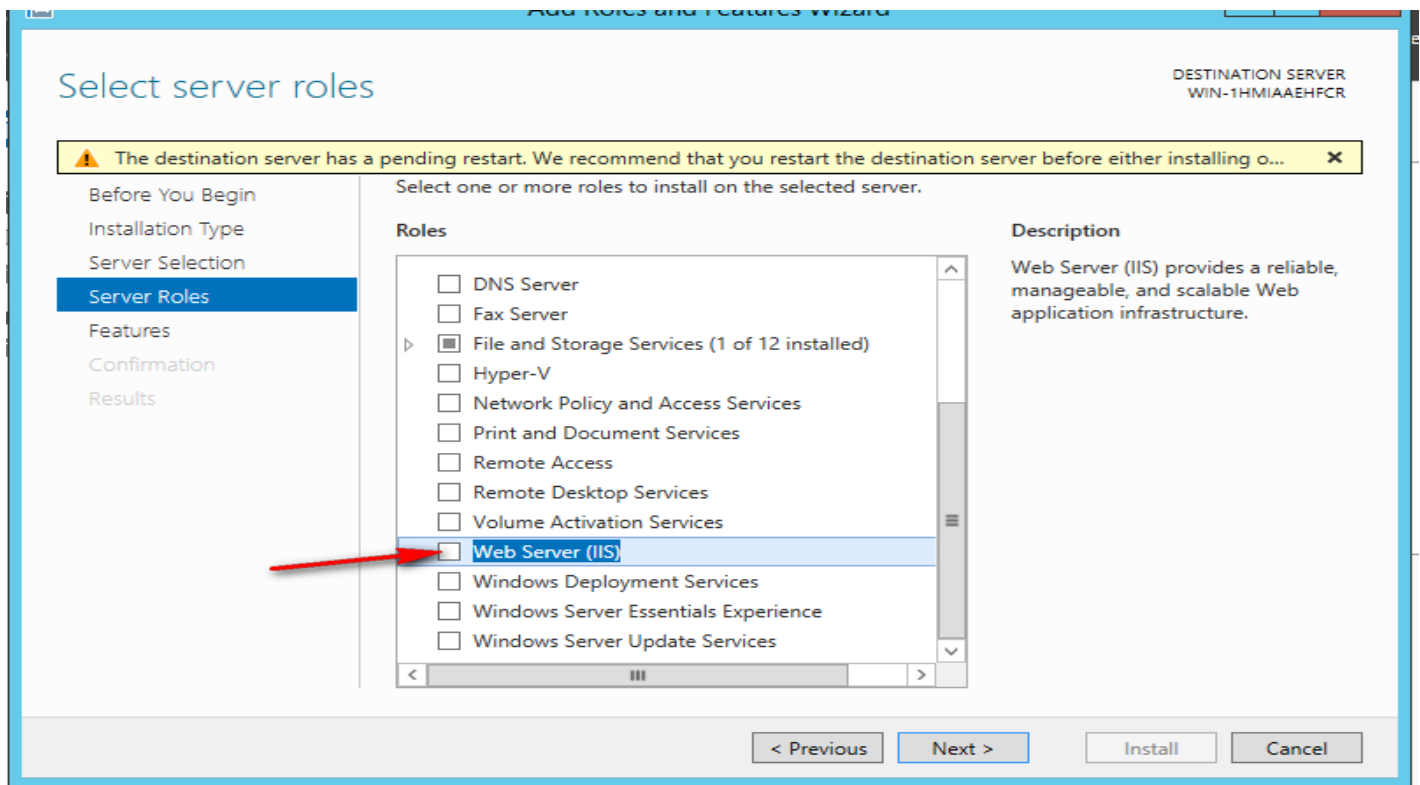
Select role-based



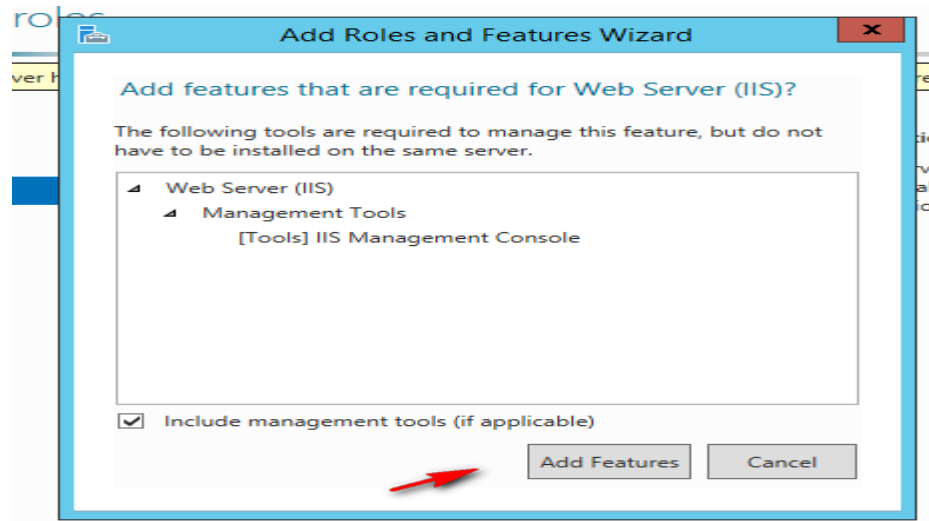
Select a server from server pool



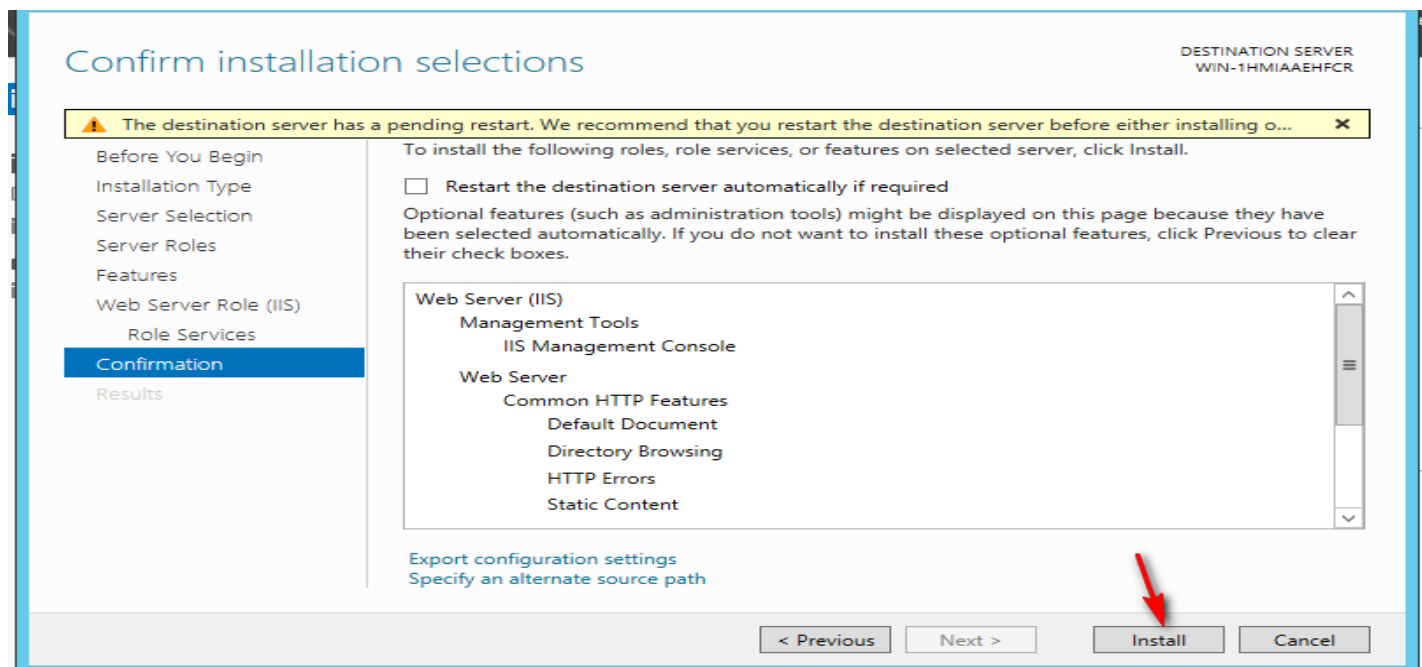
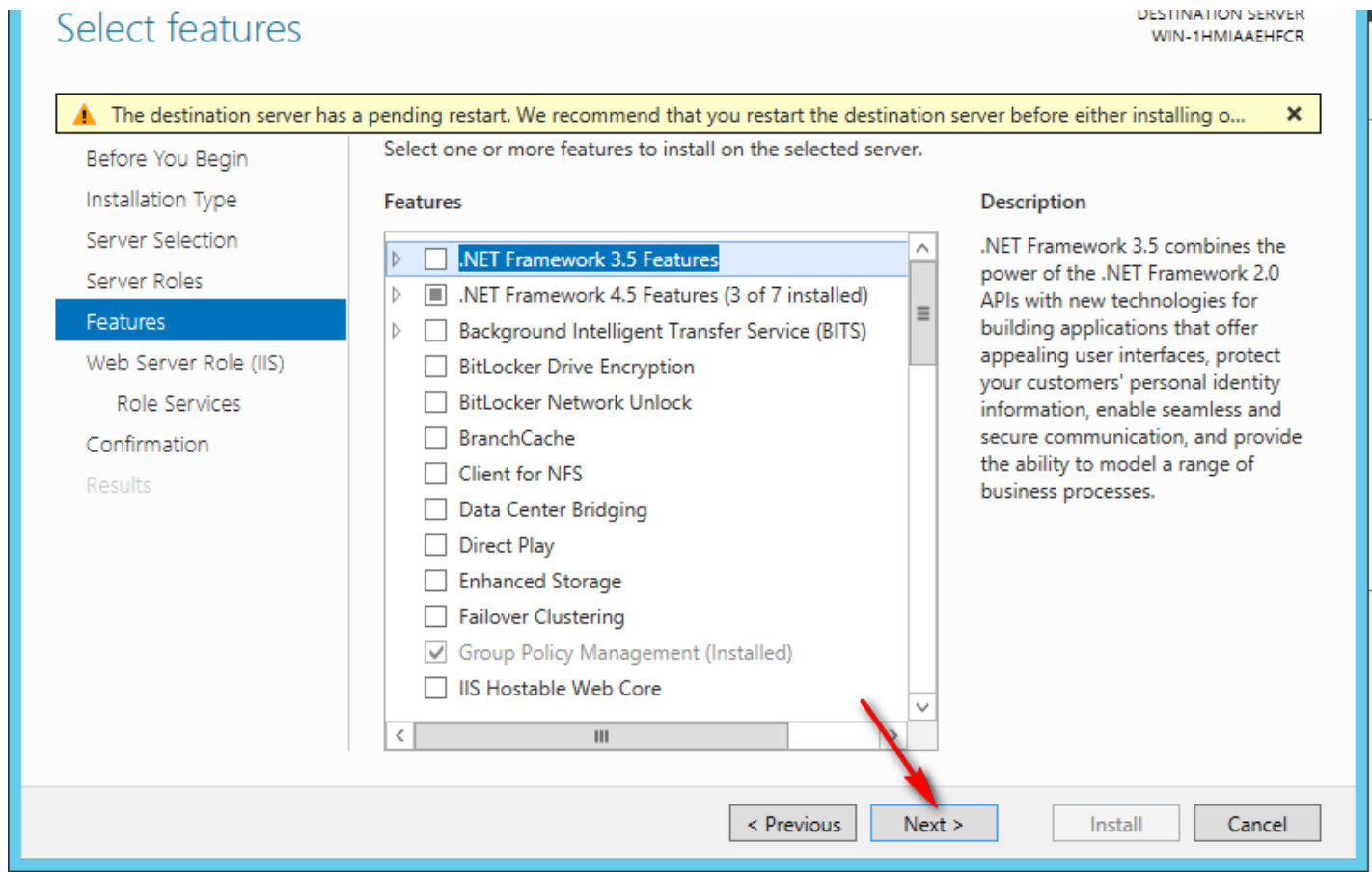
Select web server (IIS)



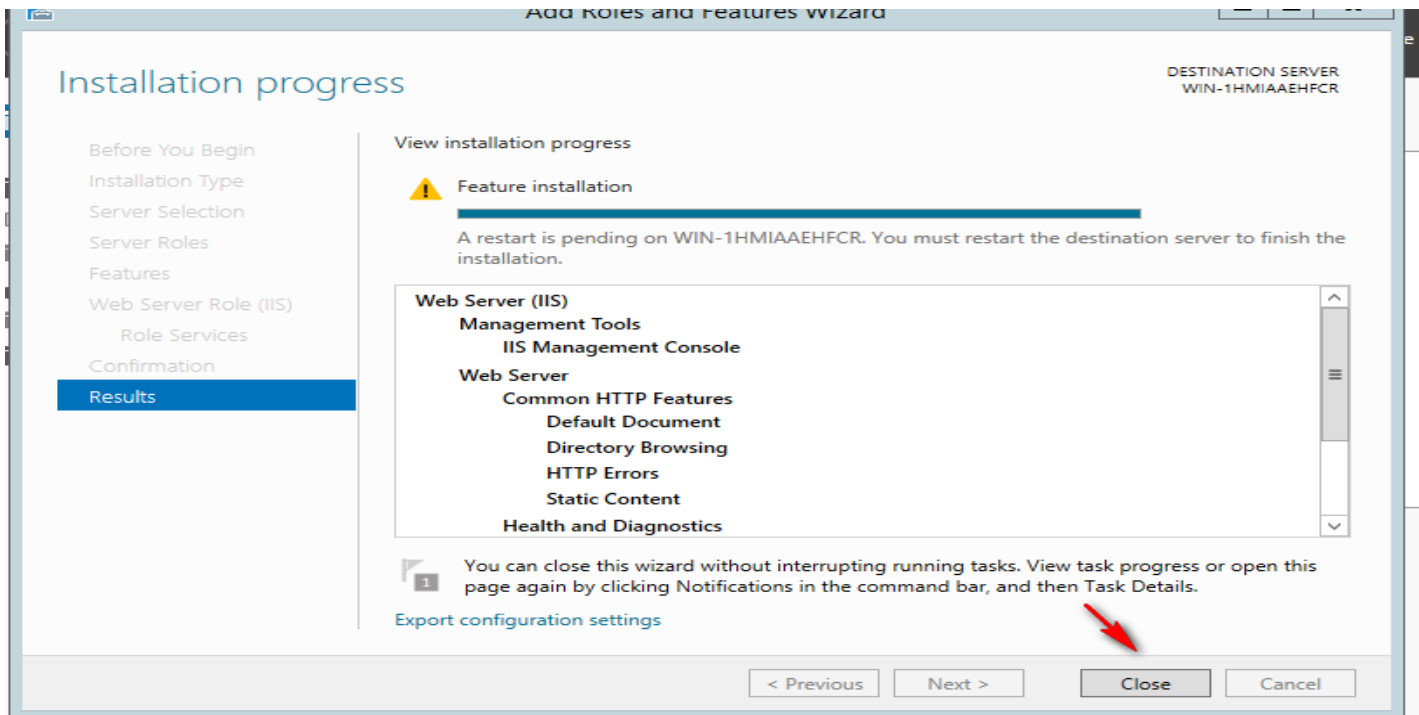
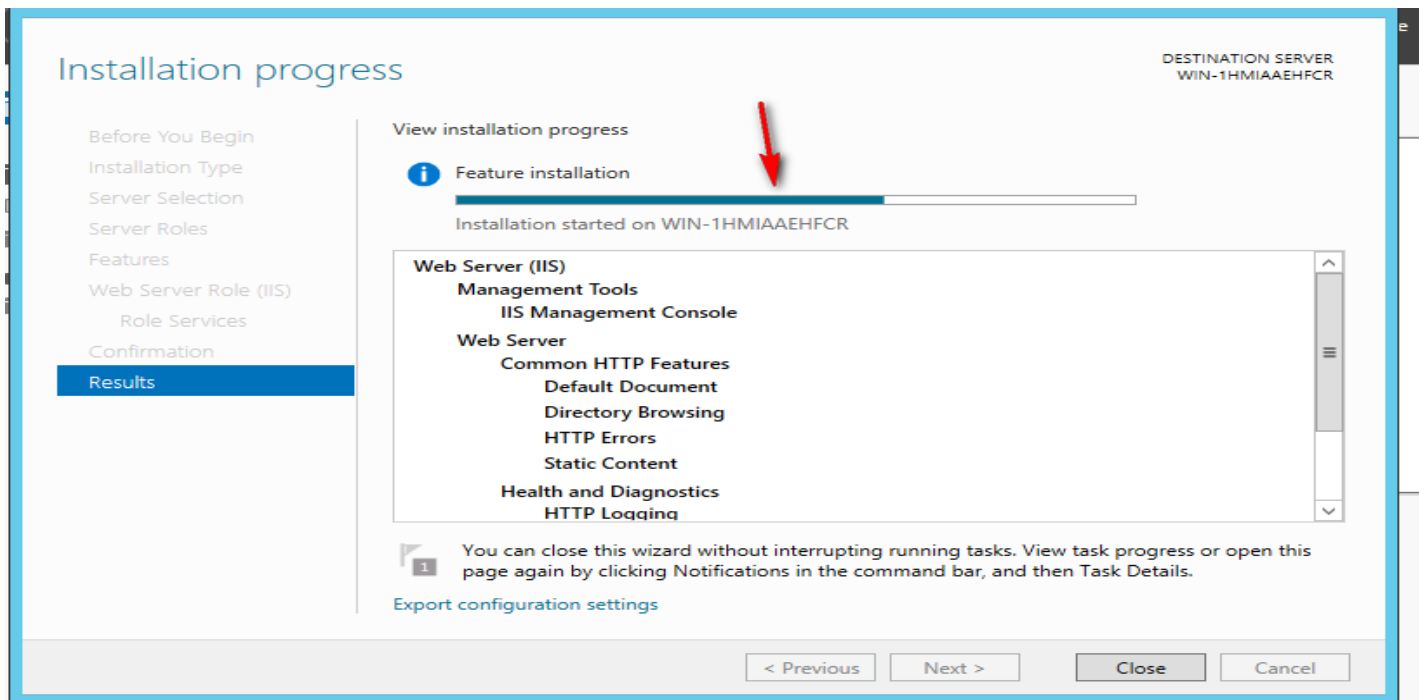
Add features

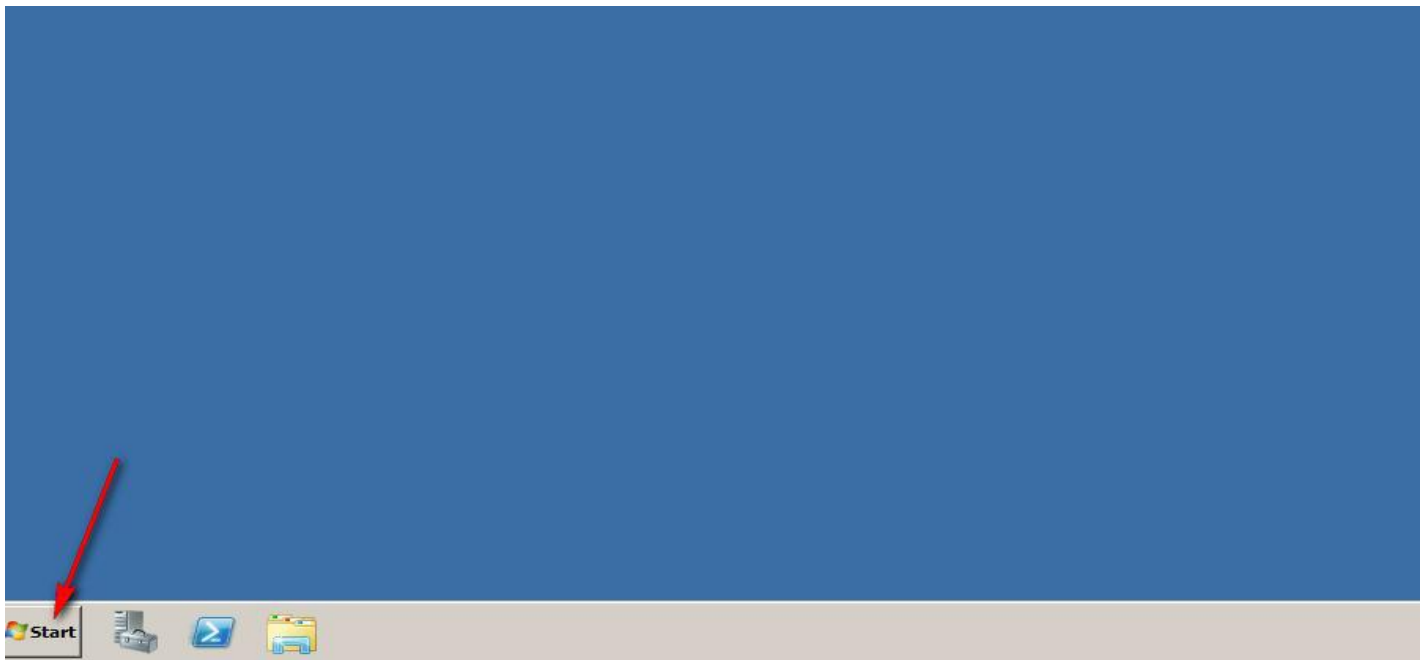


Press Next

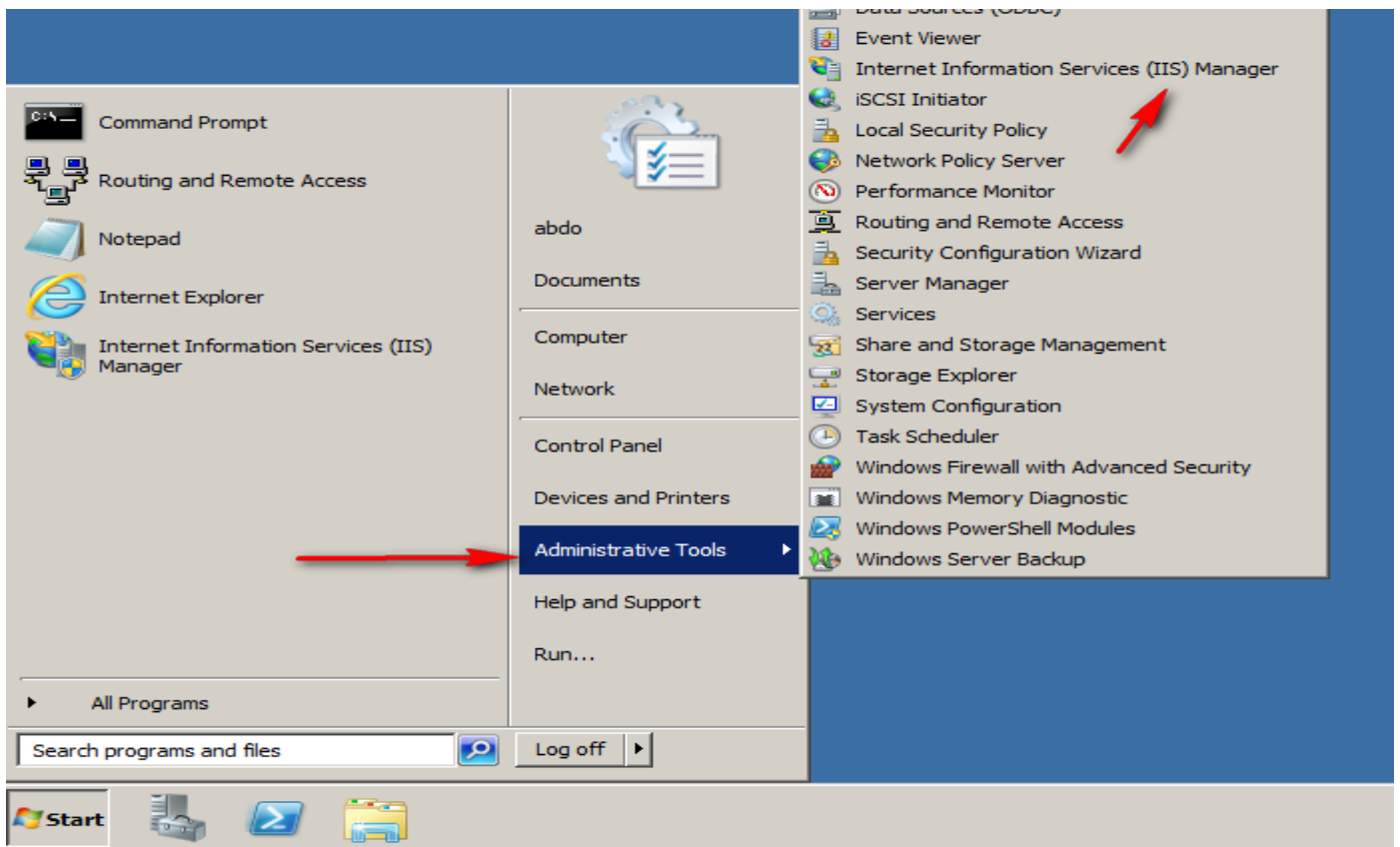


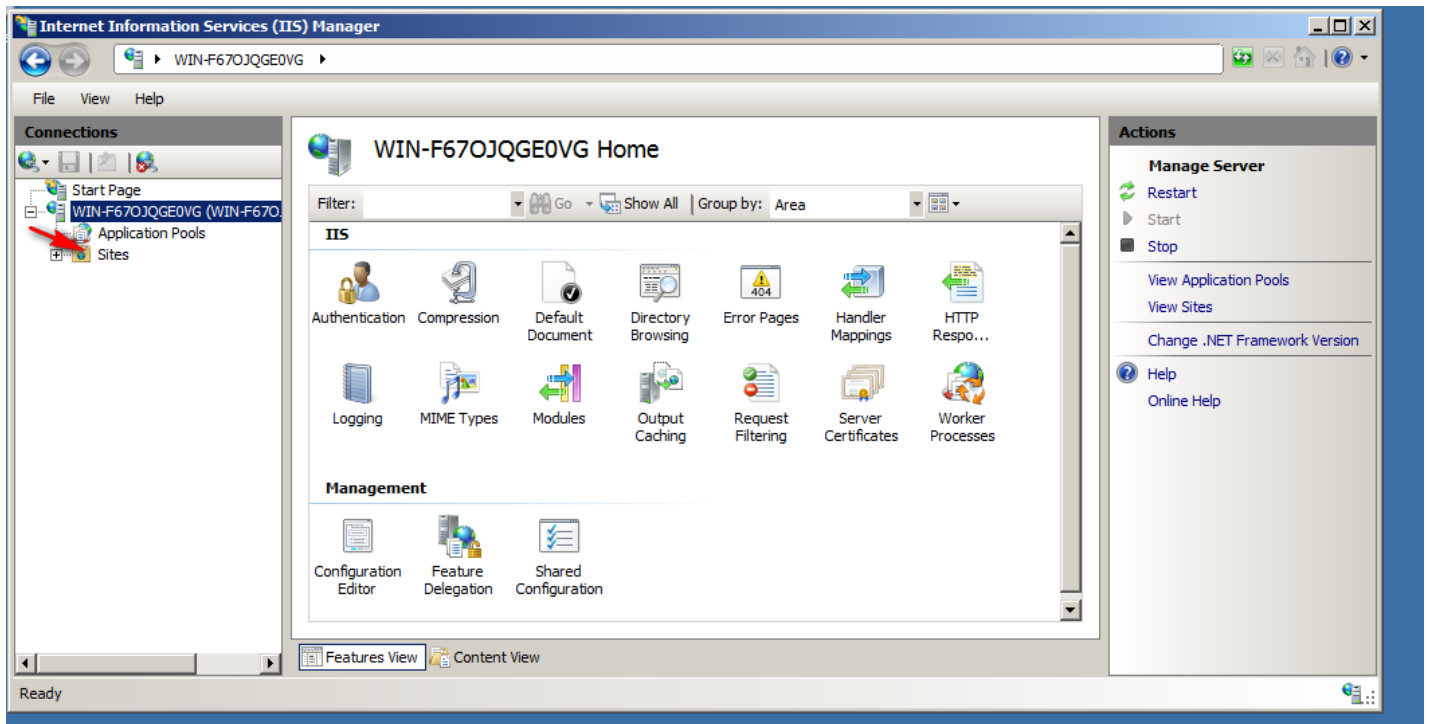
Press close





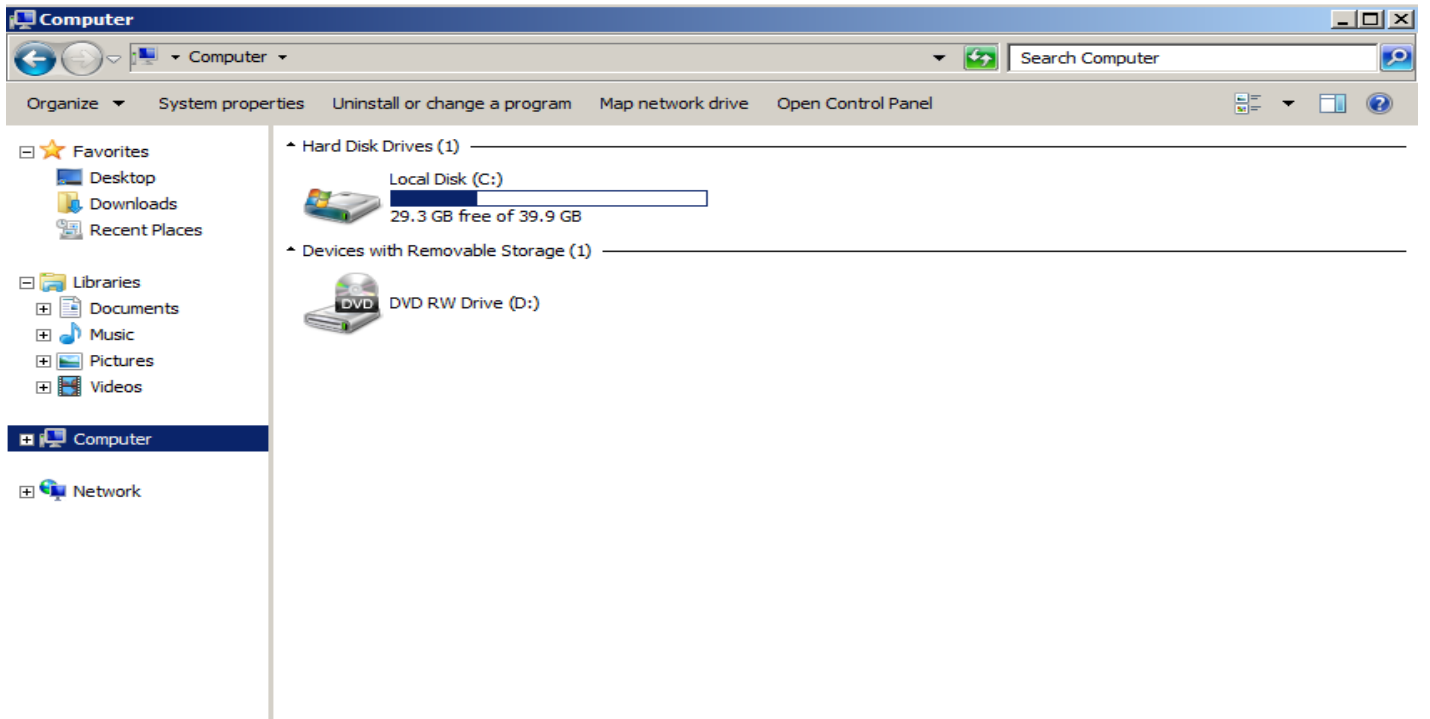
الدخول على الكونسول الخاص IIS



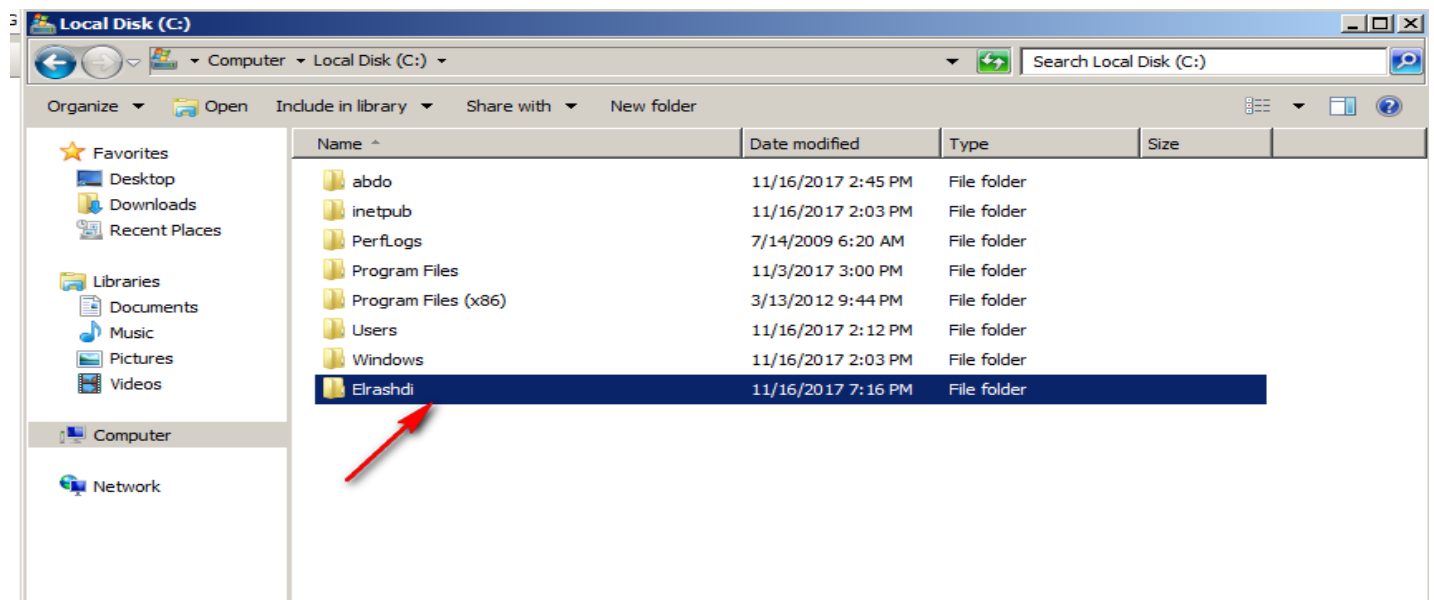


Create internal web site

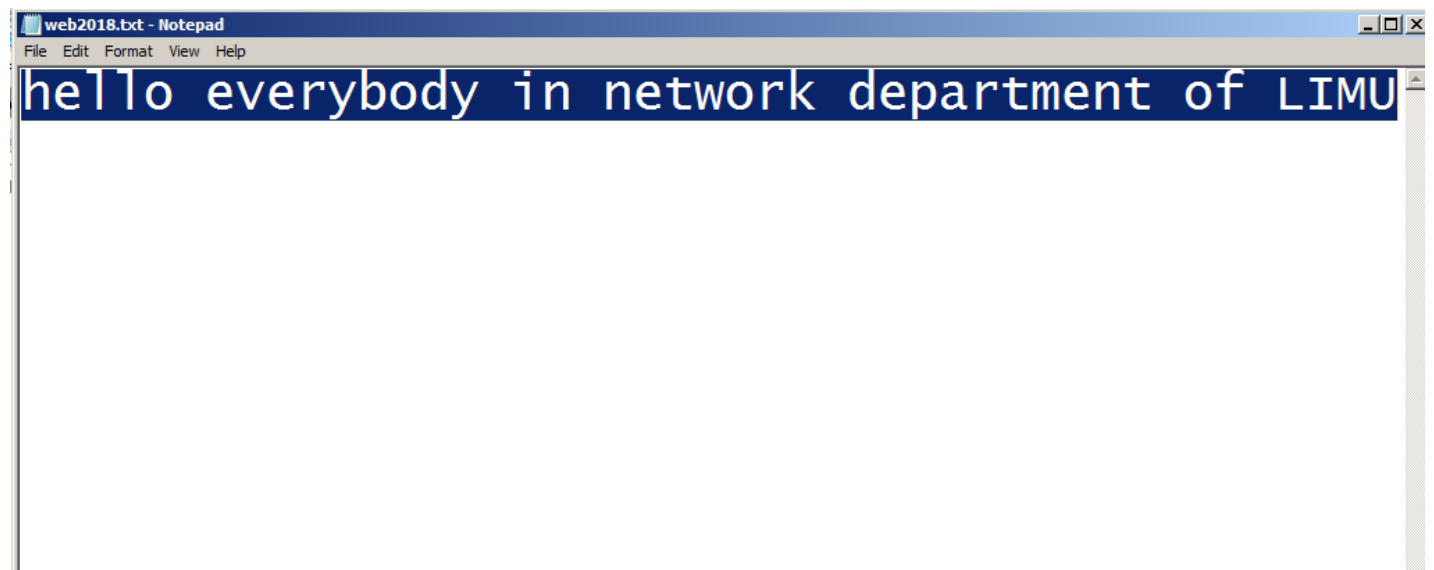
انشاء موقع داخلي مبسط لاختبار عملية Packet filter



Create internal web site

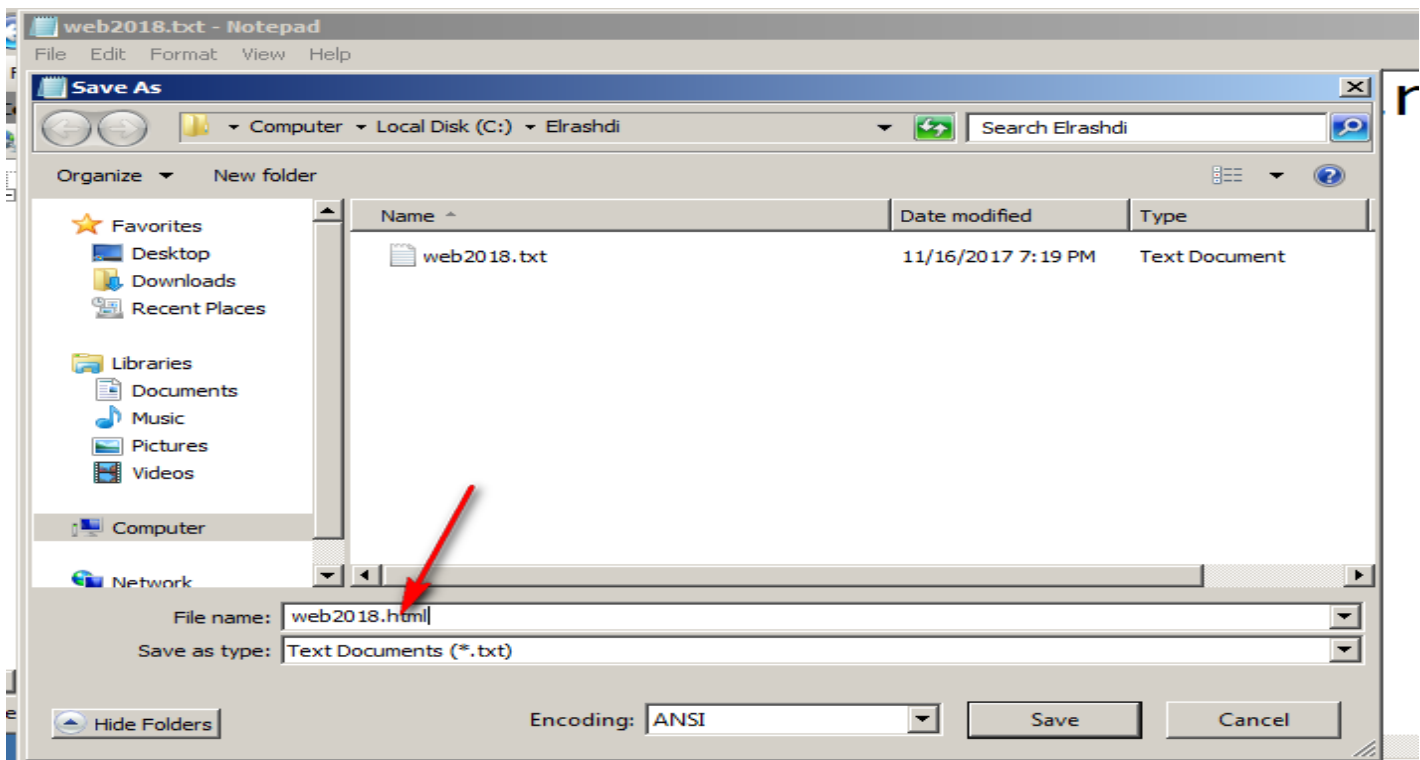
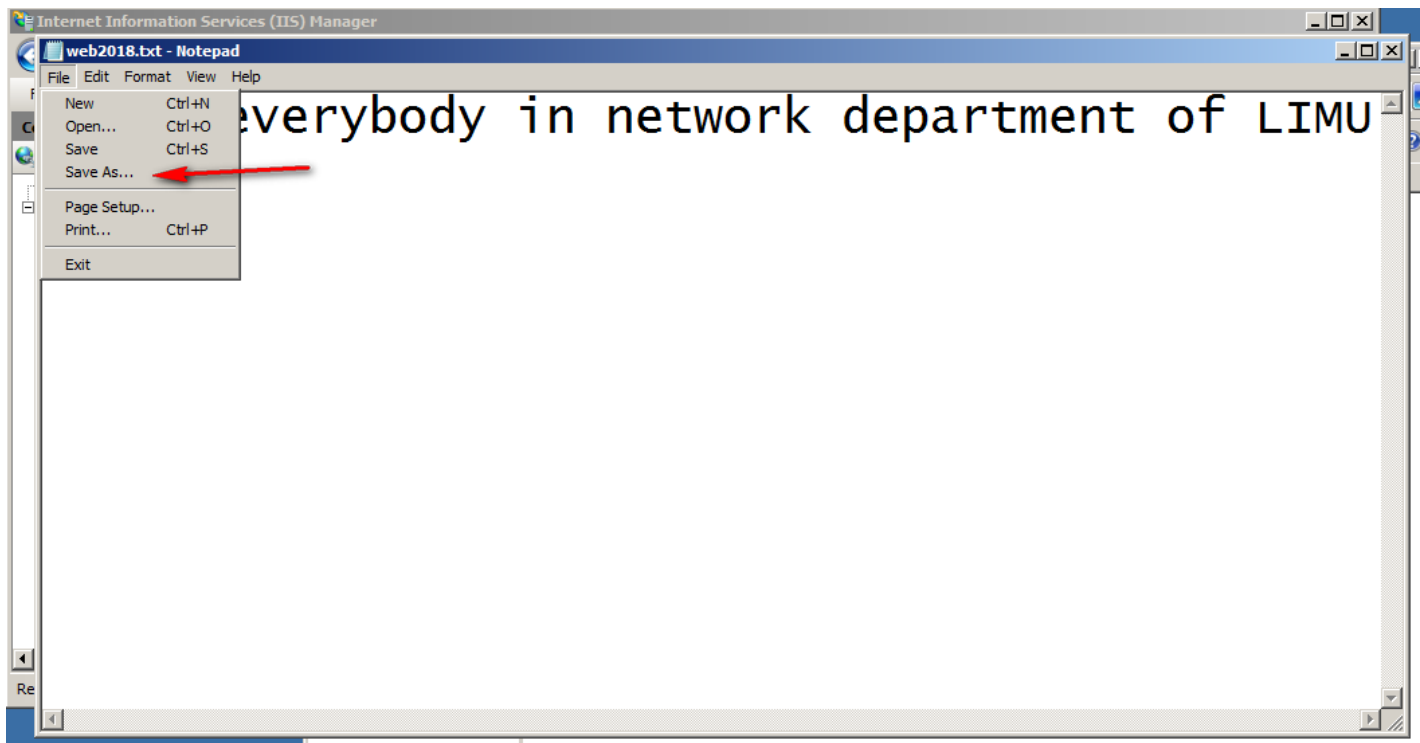


Open txt file then make your internal website for example we will type the following



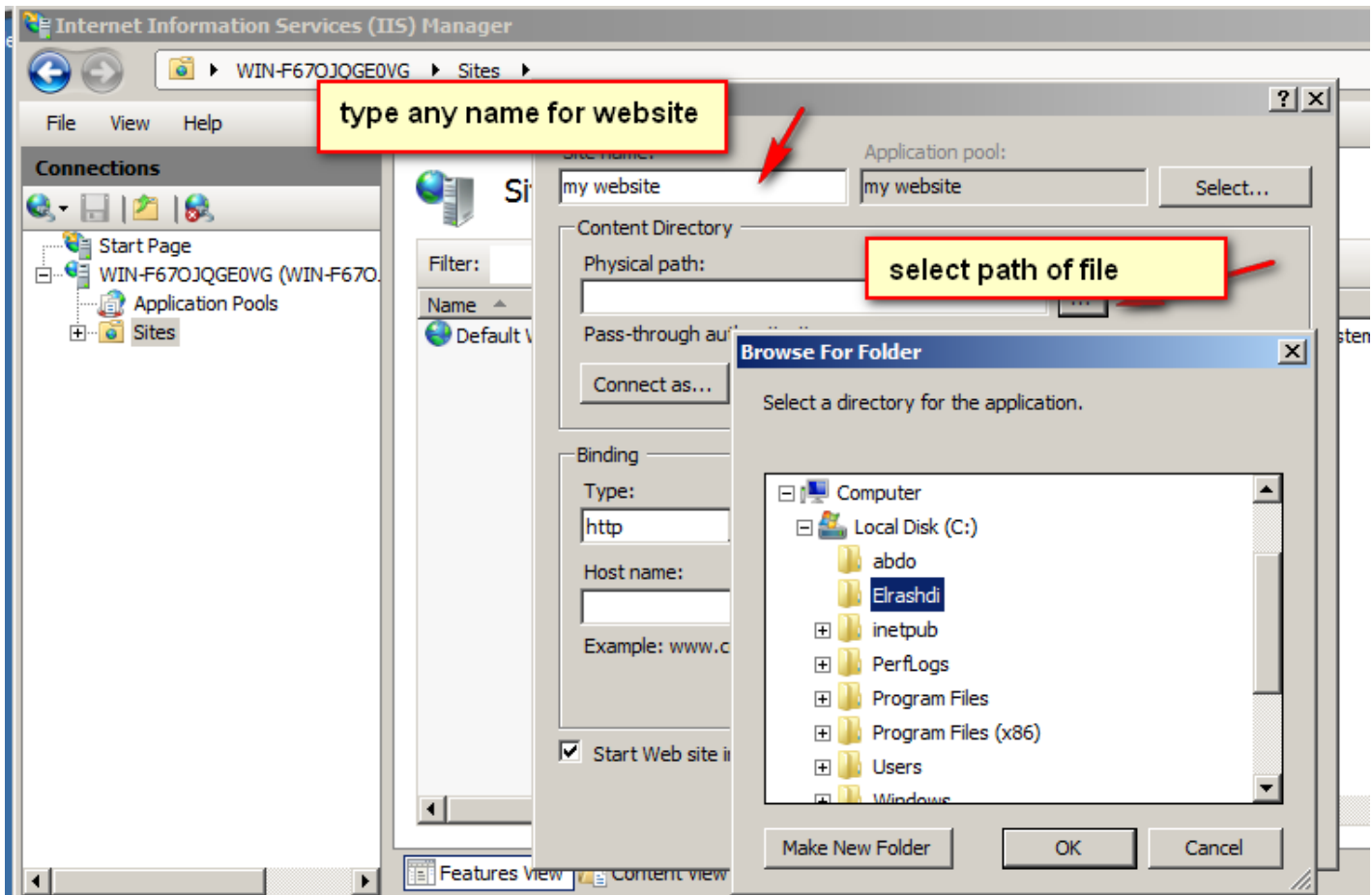
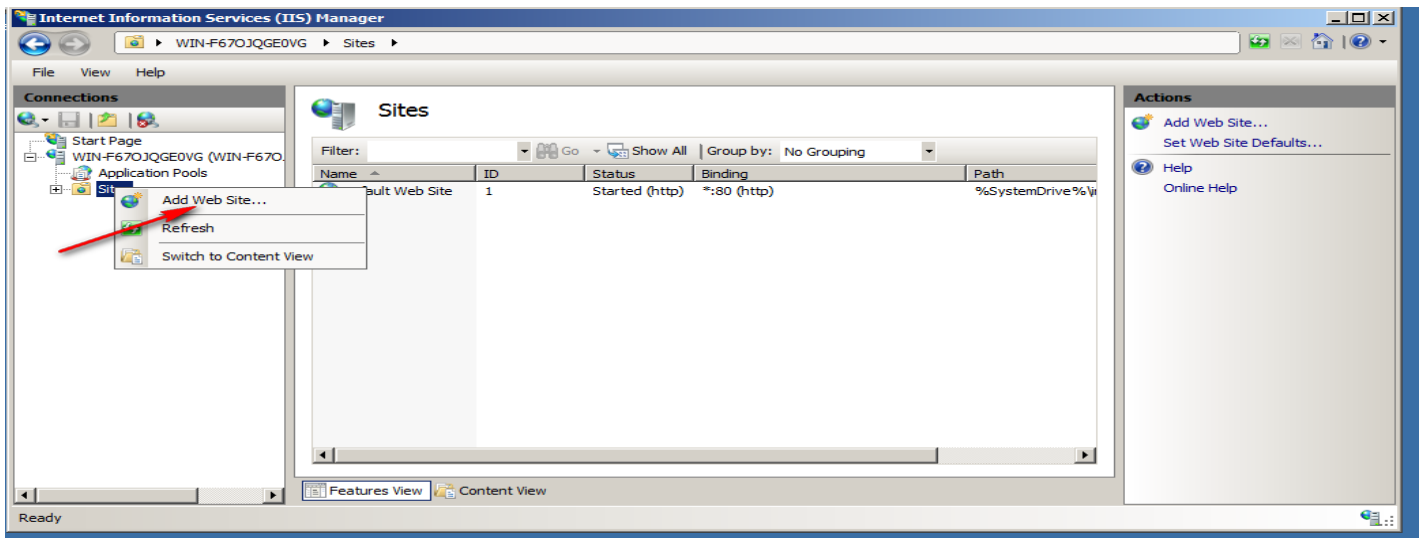
Save as html file

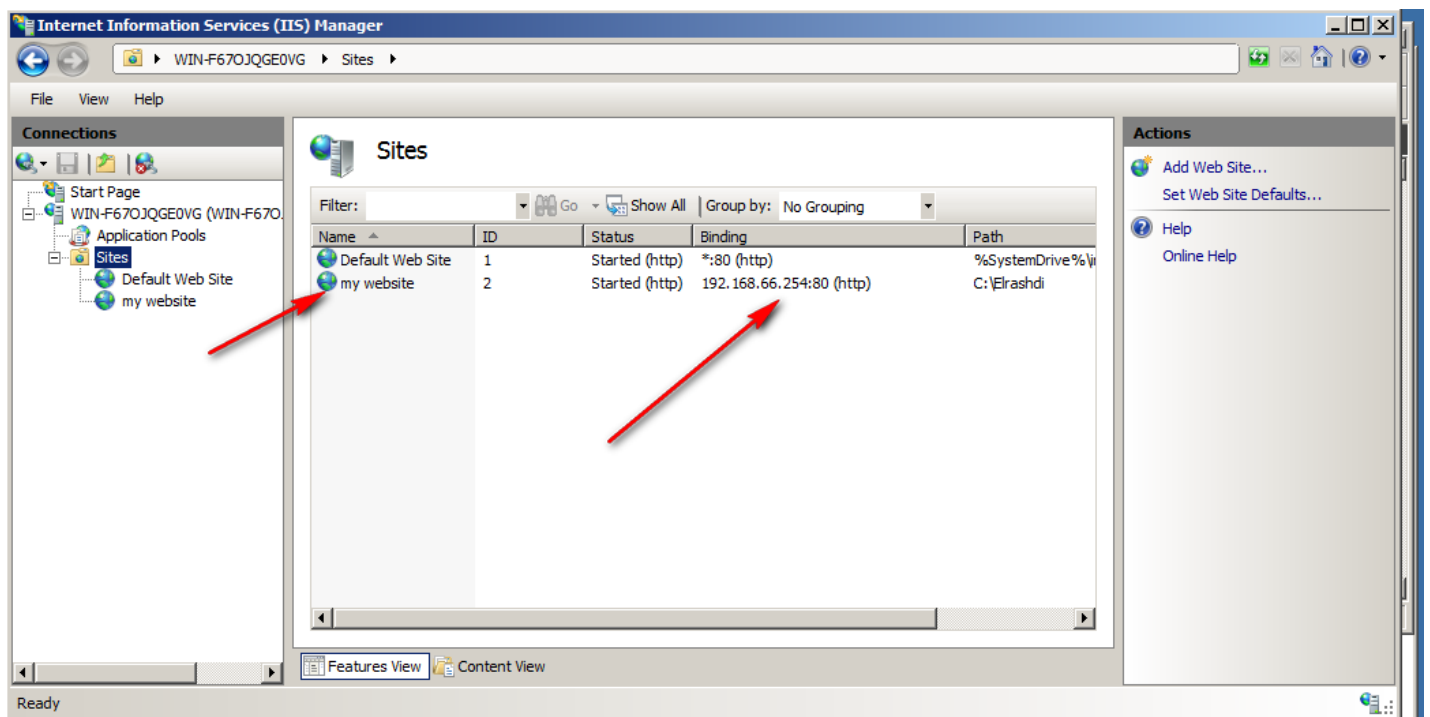
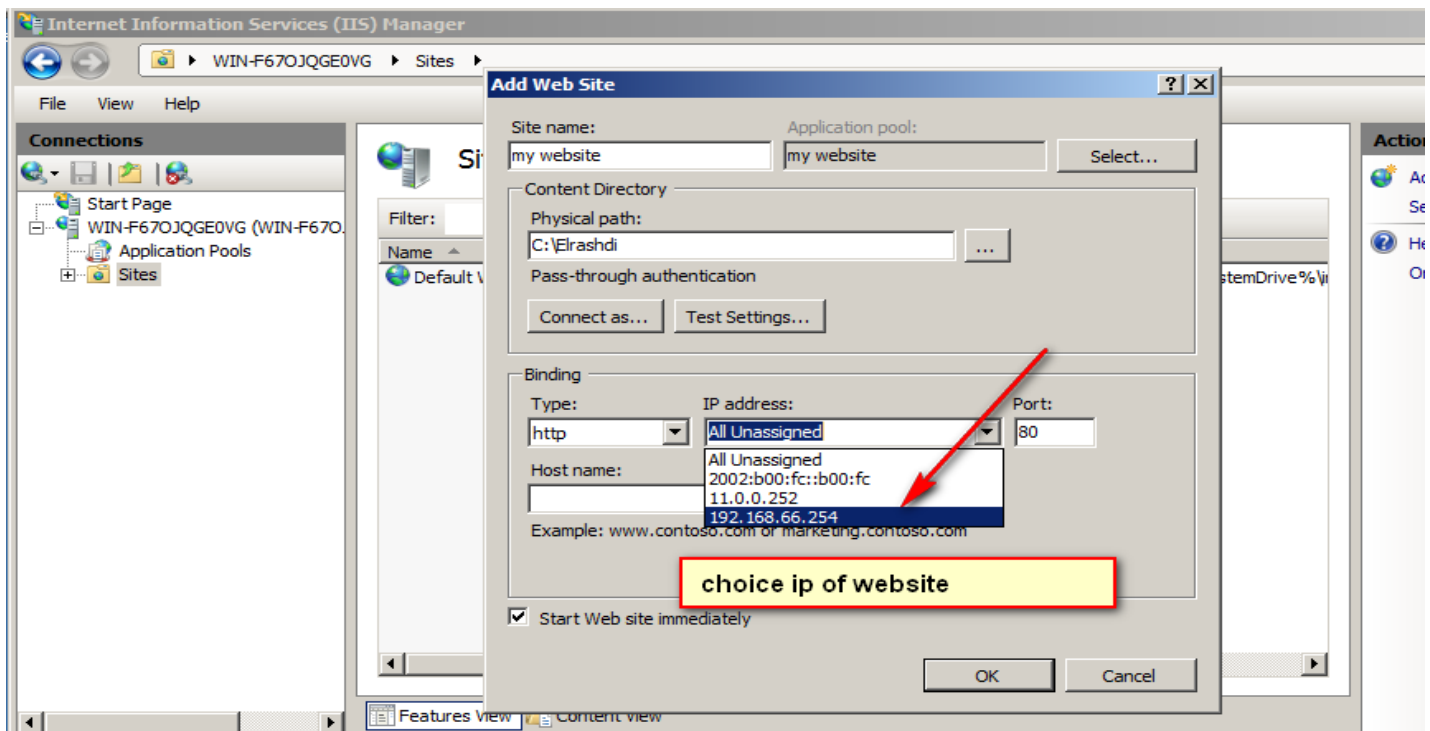
تخزين الملف بامتداد HTML



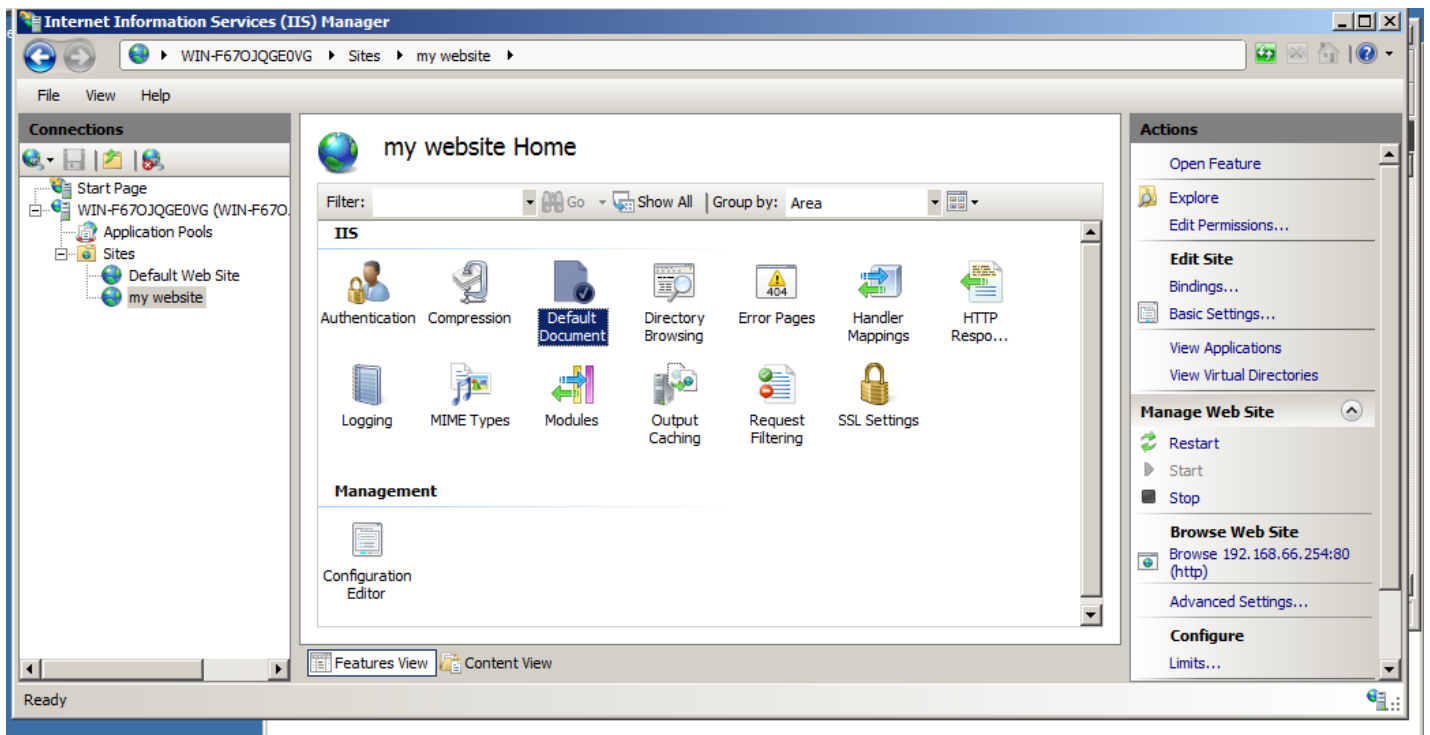
Add web site

الإشارة إلى الموقع الداخلي الذي تم إنشاؤه

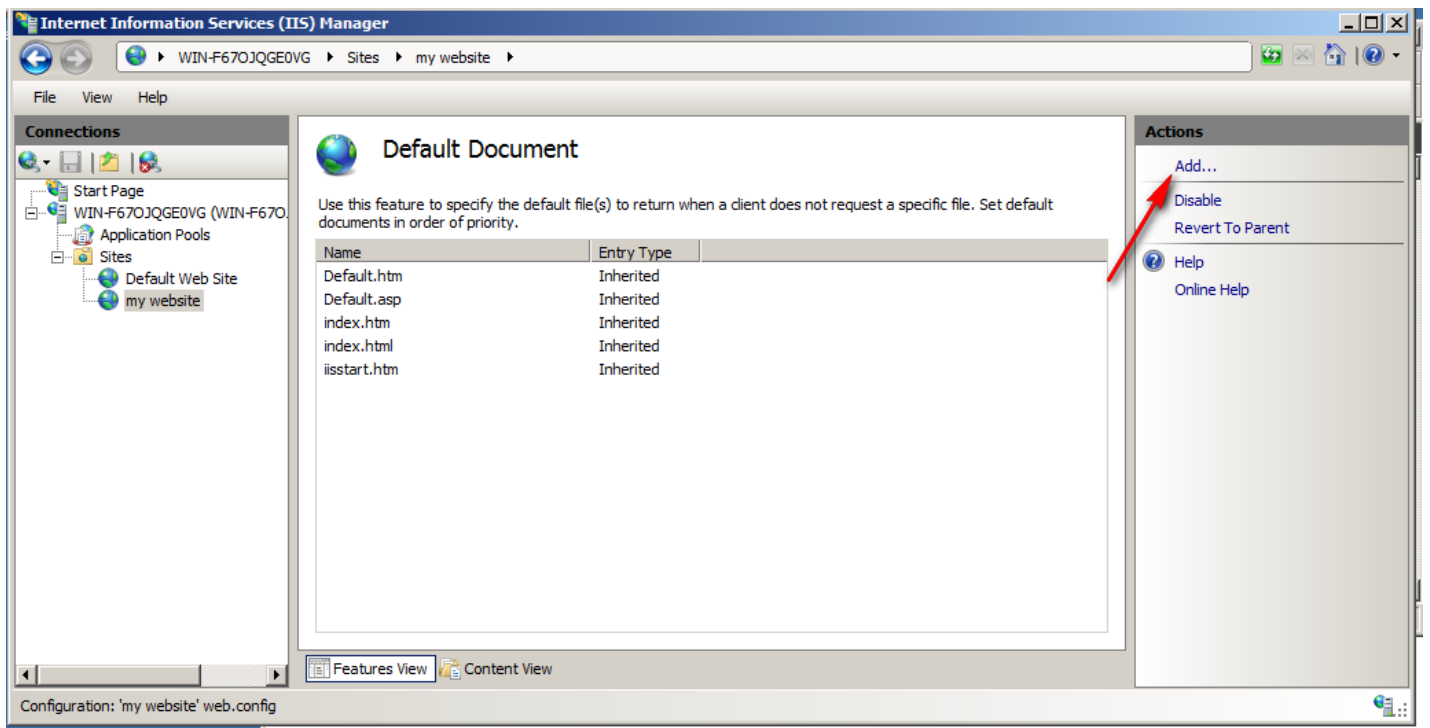




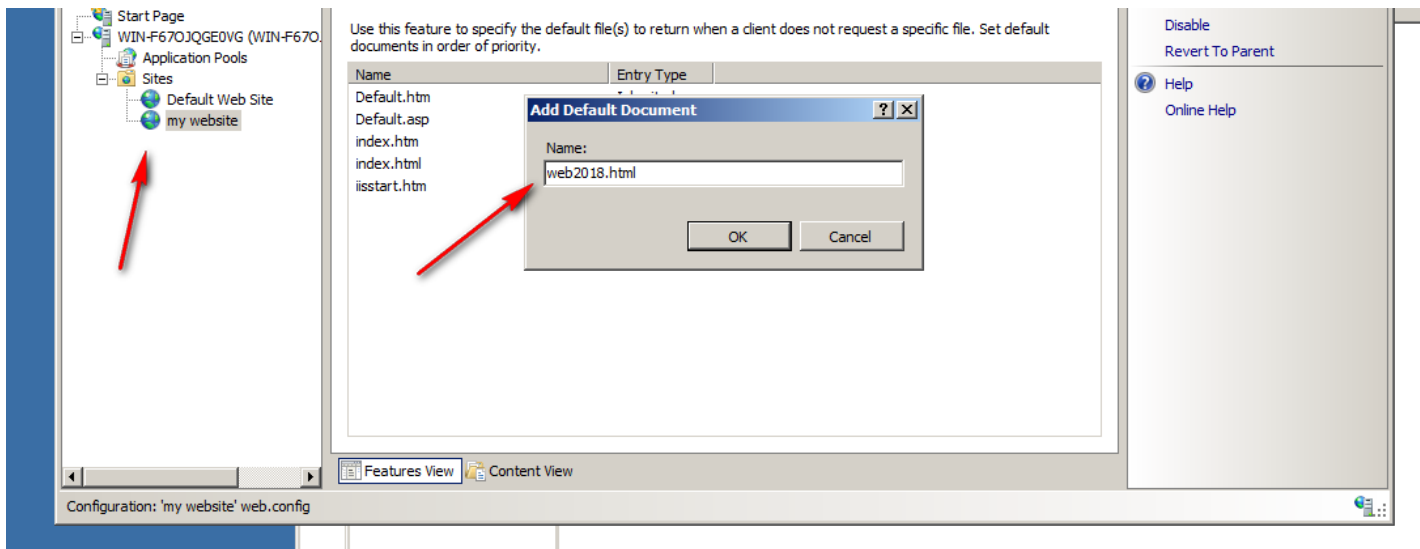
Press on default document



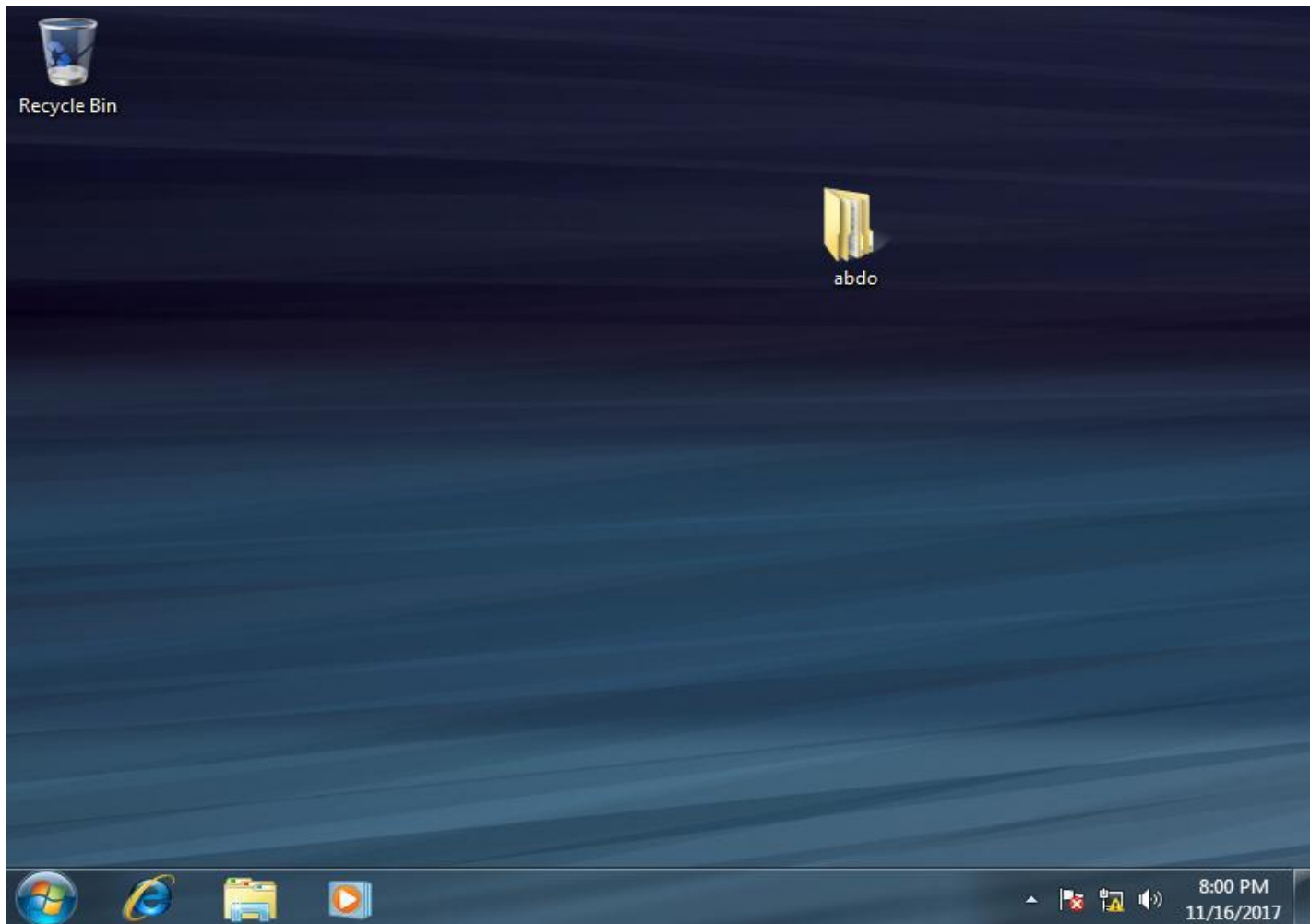
Press Add



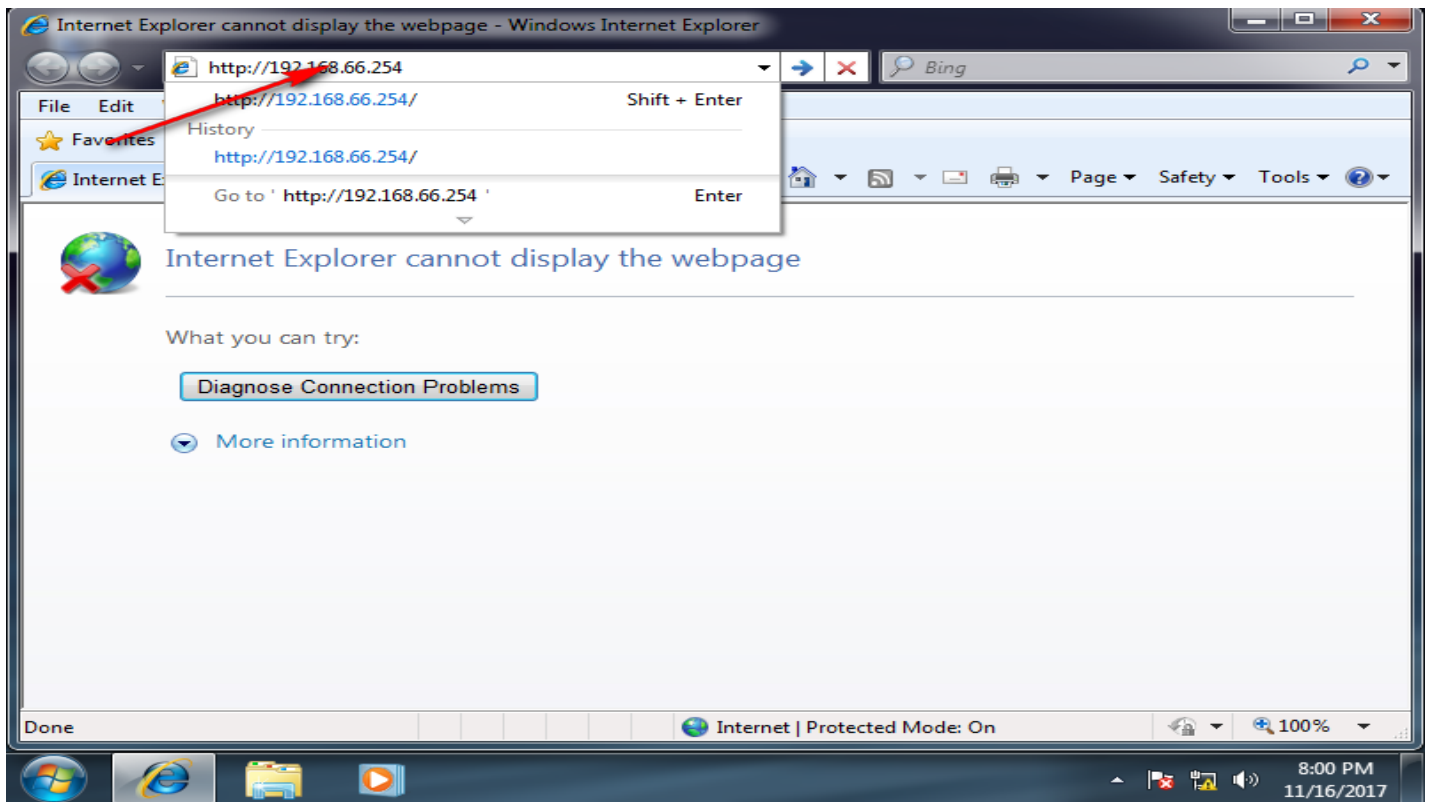
Choice name of HTML file



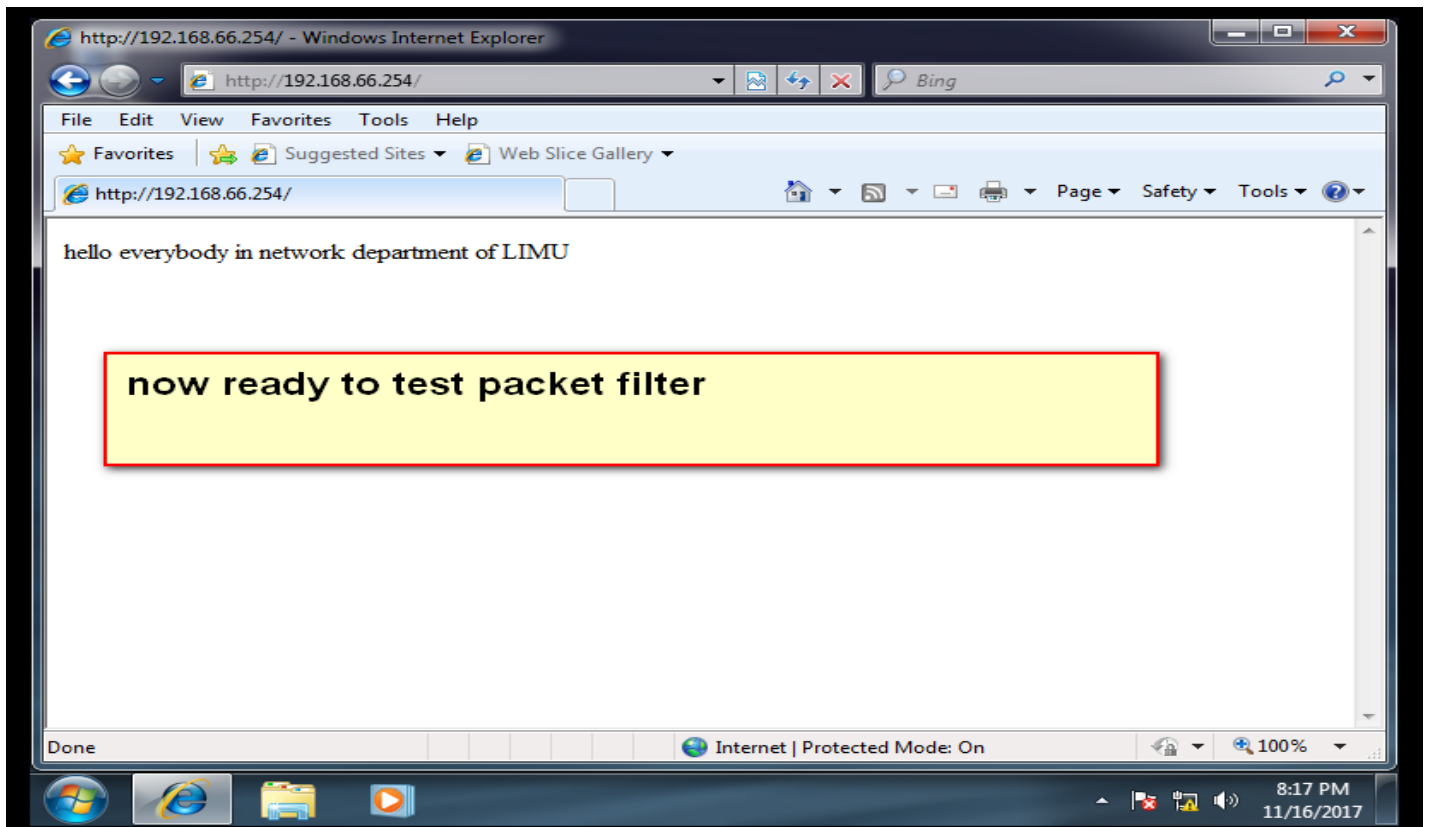
Enter to internal web site from windows seven



Type lp of internal web site

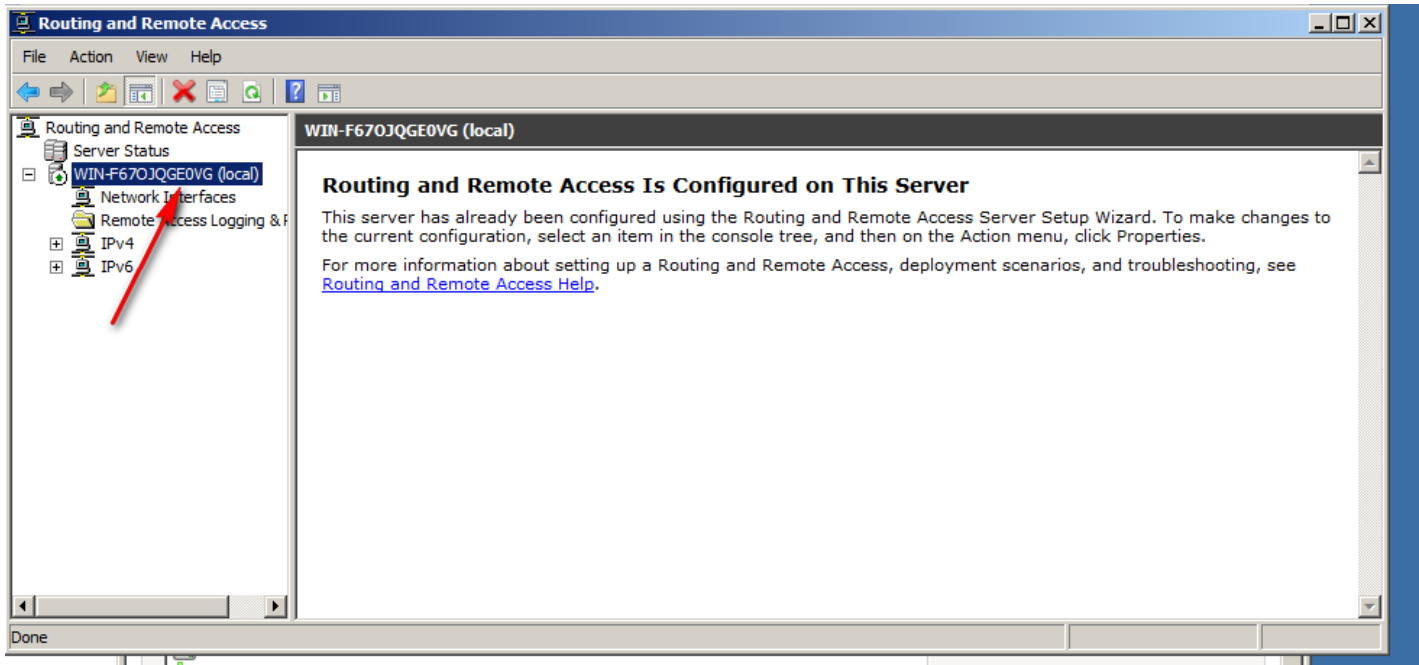


Enter to internal web site



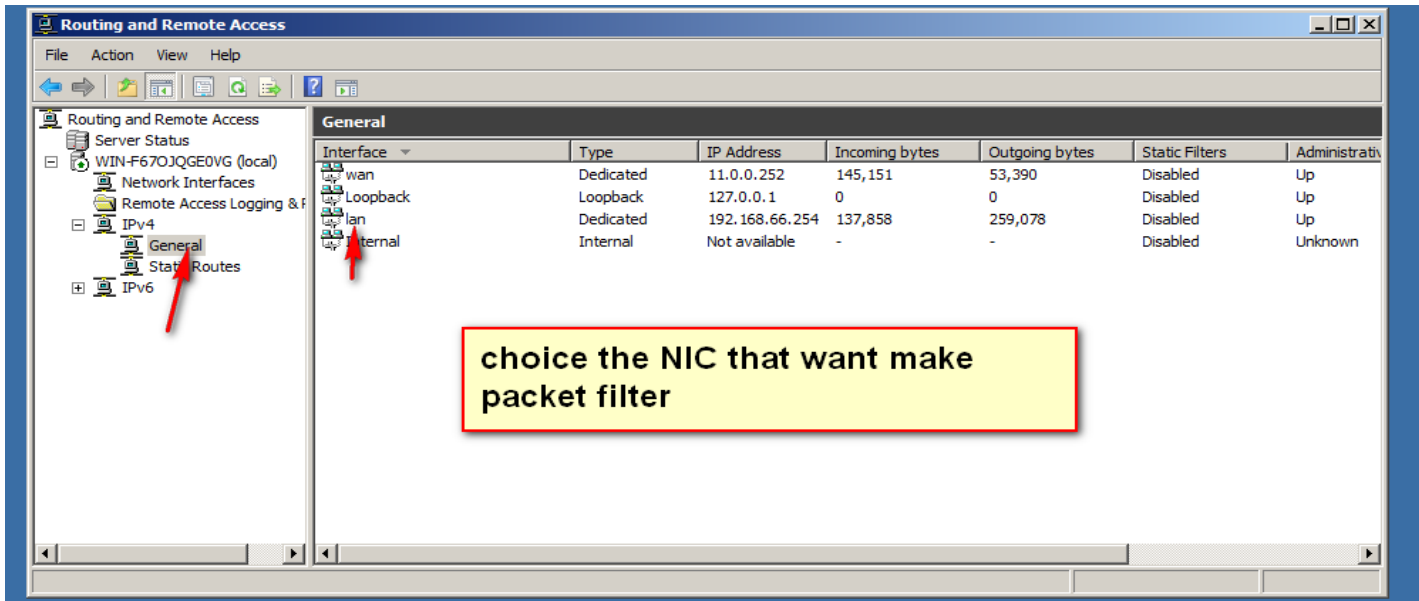
Now start packet filter open routing and remote access

الآن بعد اكمال عملية فتح الموقع الداخلي يتم تفعيل عملية packet filter



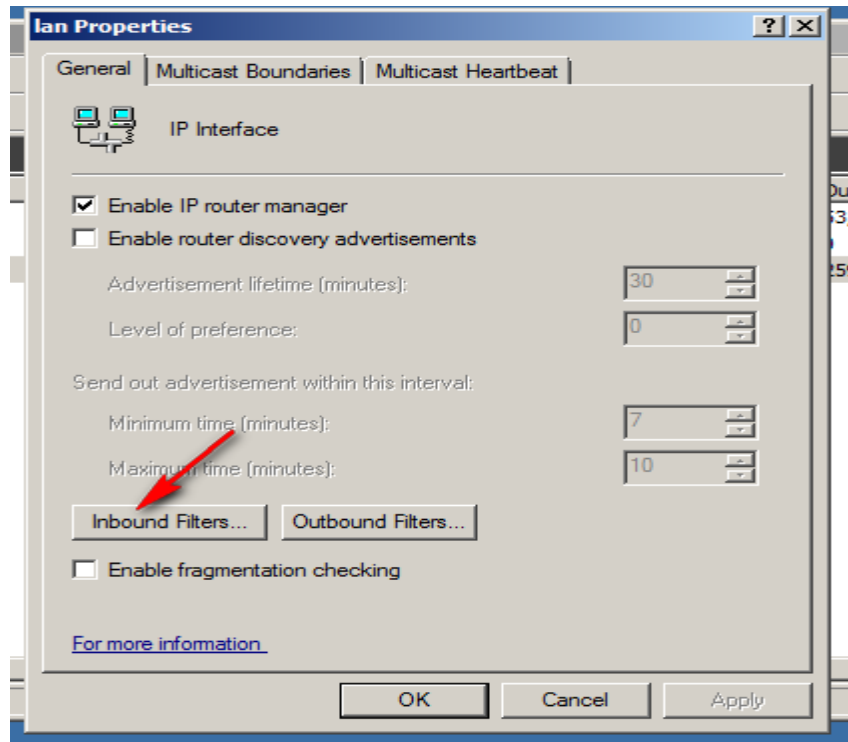
Choice the NIC that want make the filter on it

اختيار كرت الشبكة المراد عمل تحكم عليه

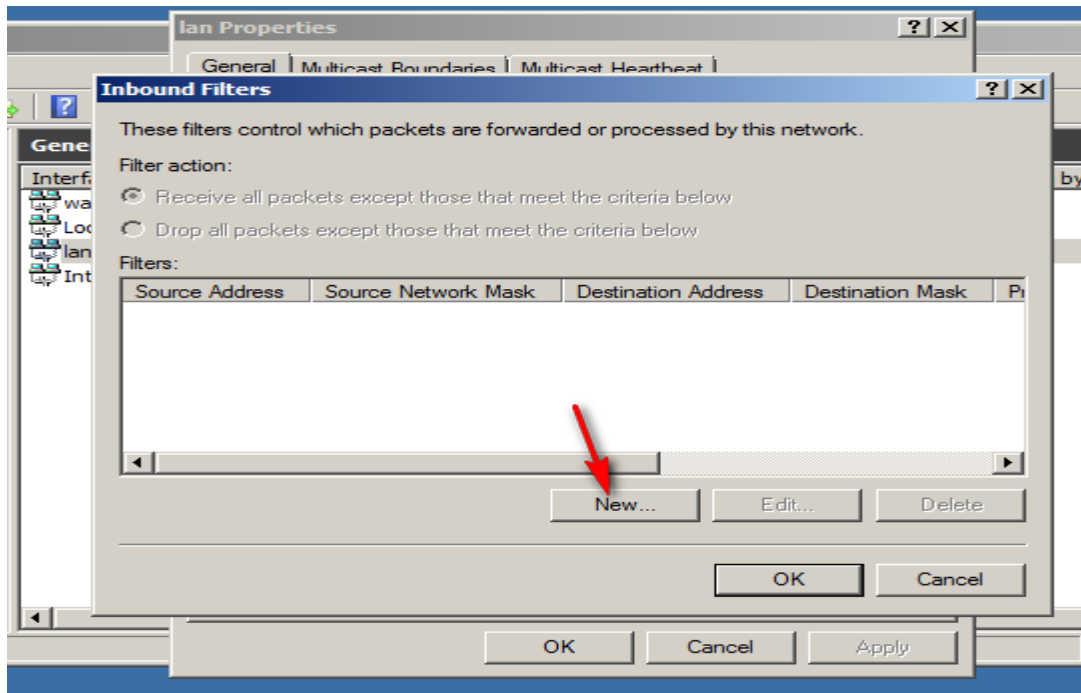


Select inbound filters

تحديد ما اذا كانت البيانات داخله او خارجه من الخادم في هذه التجرب سوف نختبر البيانات الداخلة الي
الخادم server

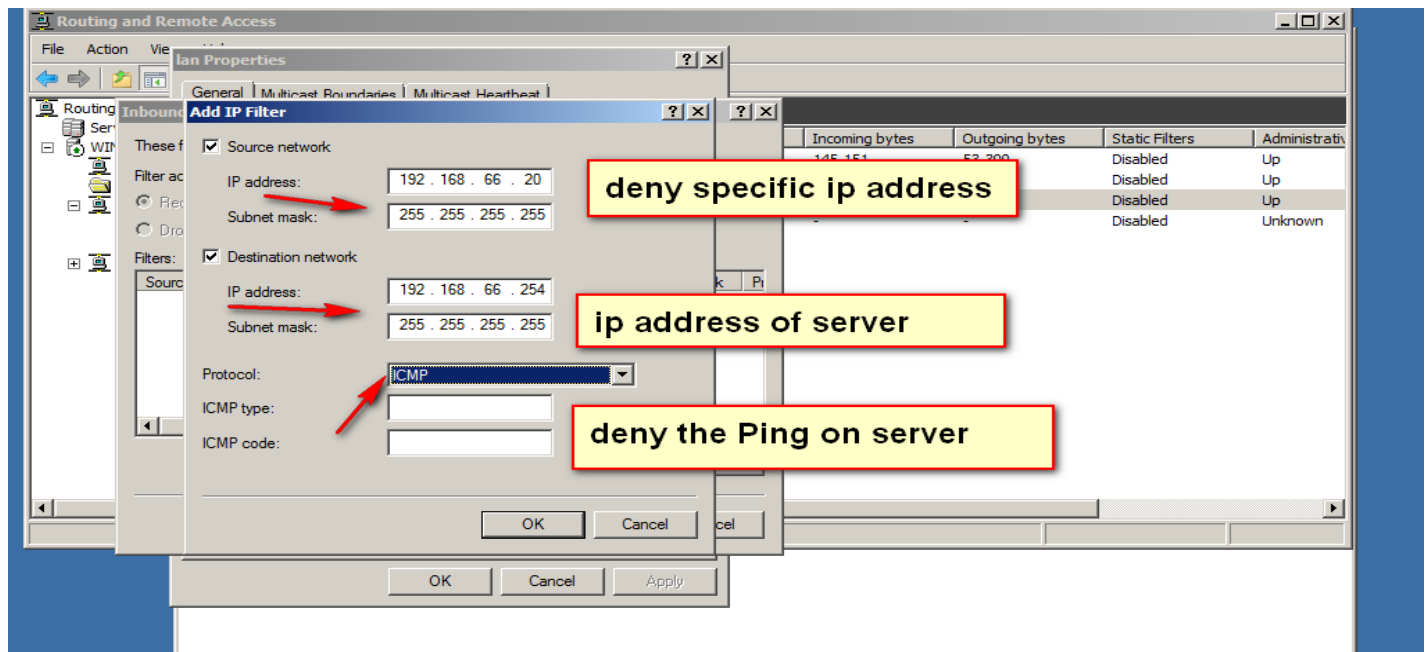


Select new



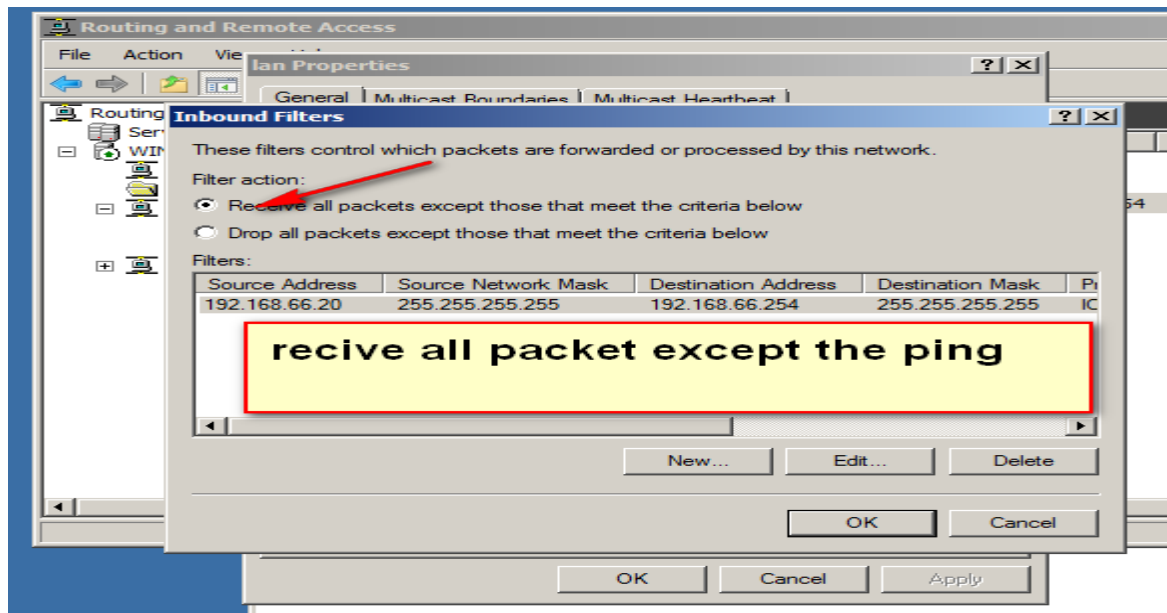
Now deny specific Ip address

تحدد عنوان معين IP address يتم منعه من عمل ping لل server عن طريق بروتوكول ICMP

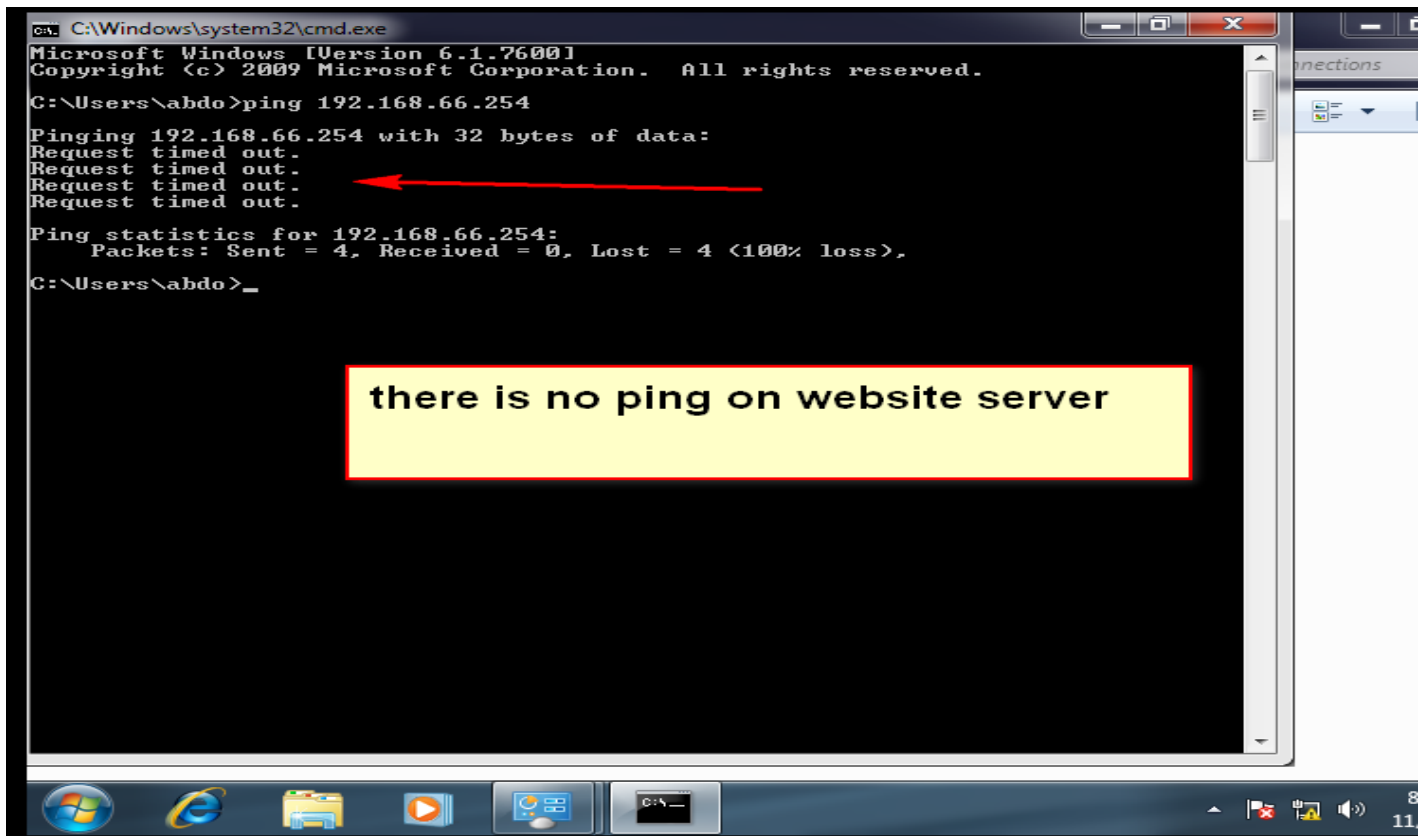


Two options first on received all packet except this rule second drop all packet except this rule

اول اختيار معناها استقبال جميع البيانات ما عدا العنوان الذي تم تحديده أي بمعنى اخر استقبال جميع البيانات ما عدا عمل ping لل server عن طريق بروتوكول ICMP

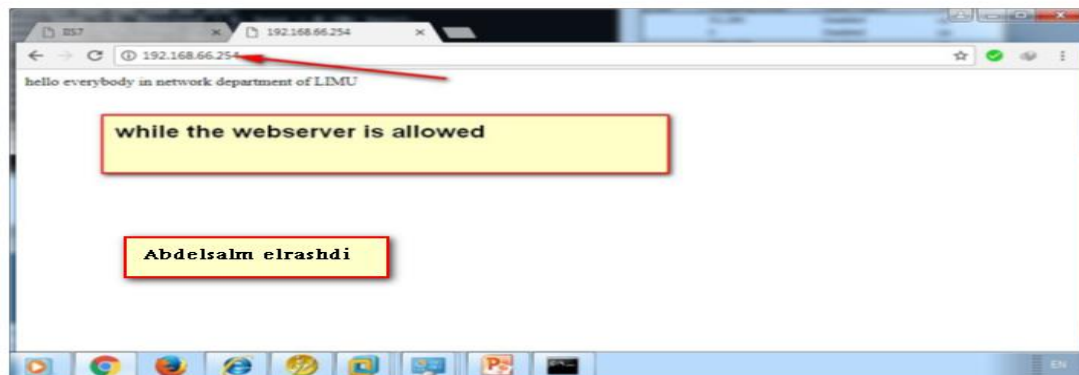


وللتأكد سوف نقوم بعمل ping علي الخادم server



While I can open my website

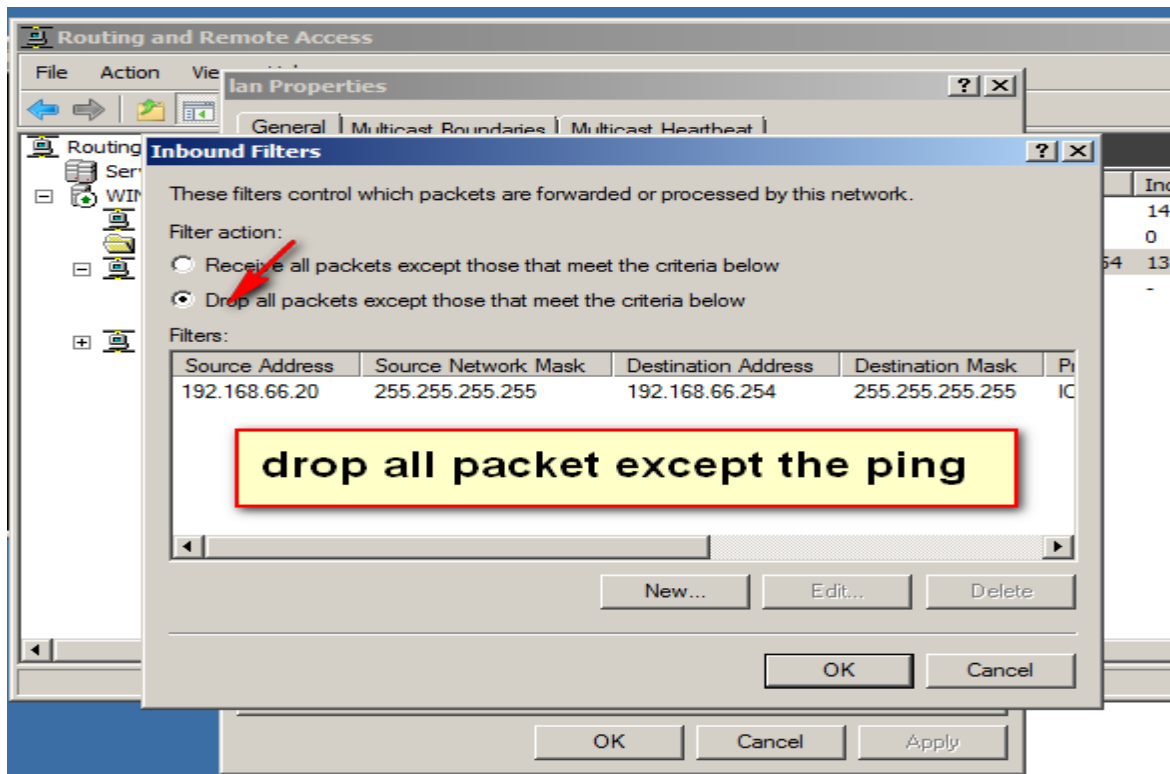
بينما باقي البيانات تمر بدون مشاكل على server على سبيل المثال تصفح الموقع الداخلي كما في الشكل التالي



Now will choice the second option

اما الاختيار الثاني بالعكس جميع البيانات تمنع الي عملية Ping عمل على السيرفر server

Now from specific Ip address try to enter to web site but can't



```
C:\Users\abdo>ping 192.168.66.254
Pinging 192.168.66.254 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.66.254:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\Users\abdo>ping 192.168.66.254
Pinging 192.168.66.254 with 32 bytes of data:
Request timed out.
Request timed out.
Reply from 192.168.66.254: bytes=32 time<1ms TTL=128
Reply from 192.168.66.254: bytes=32 time<1ms TTL=128

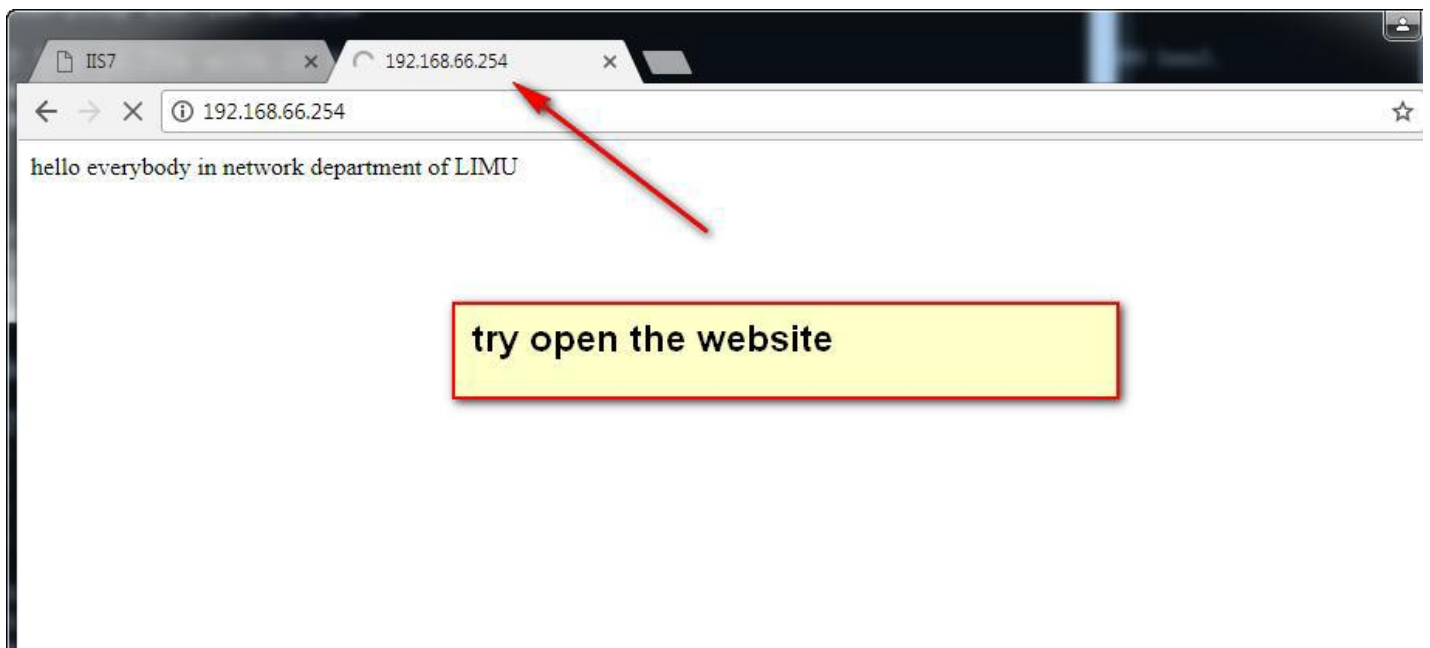
Ping statistics for 192.168.66.254:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss)
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\abdo>ping 192.168.66.254
Pinging 192.168.66.254 with 32 bytes of data:
Reply from 192.168.66.254: bytes=32 time<1ms TTL=128
Reply from 192.168.66.254: bytes=32 time<1ms TTL=128
Reply from 192.168.66.254: bytes=32 time<1ms TTL=128
Reply from 192.168.66.254: bytes=32 time<1ms TTL=128

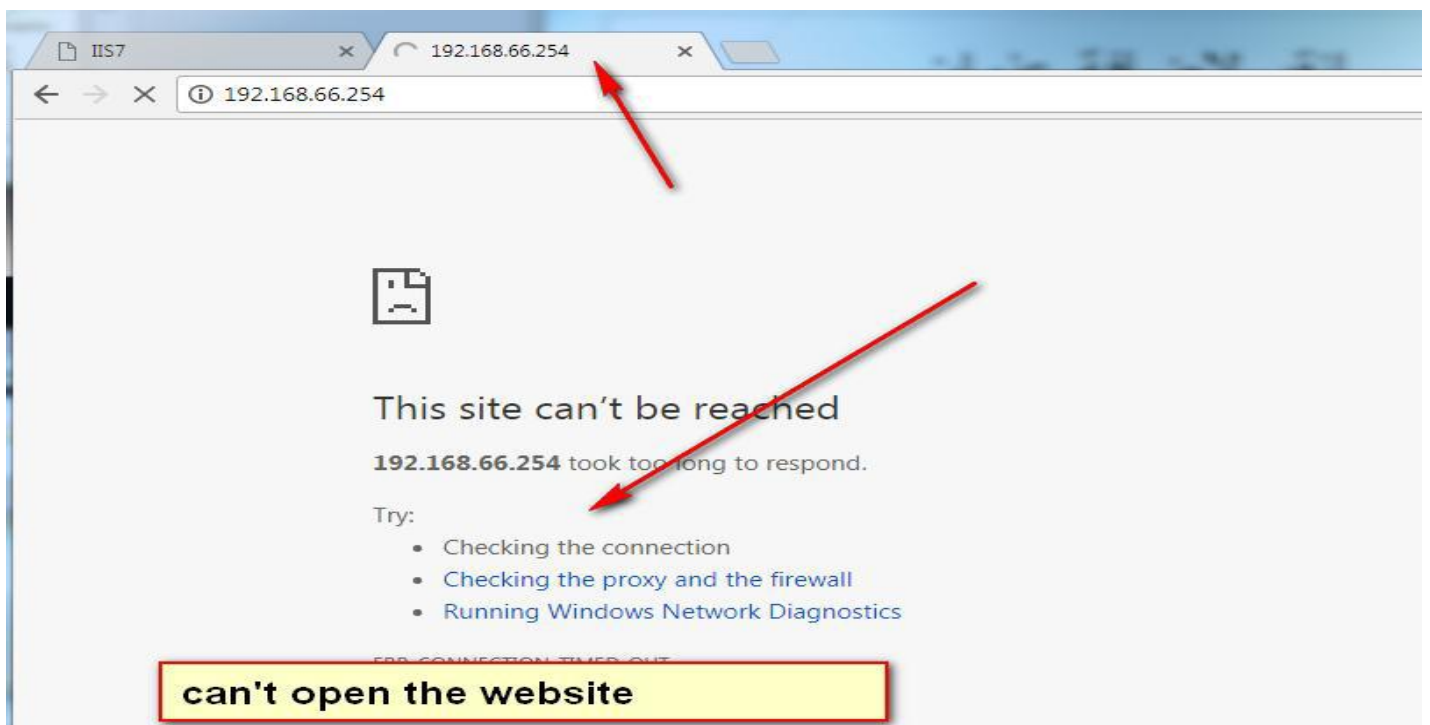
Ping statistics for 192.168.66.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\abdo>
```

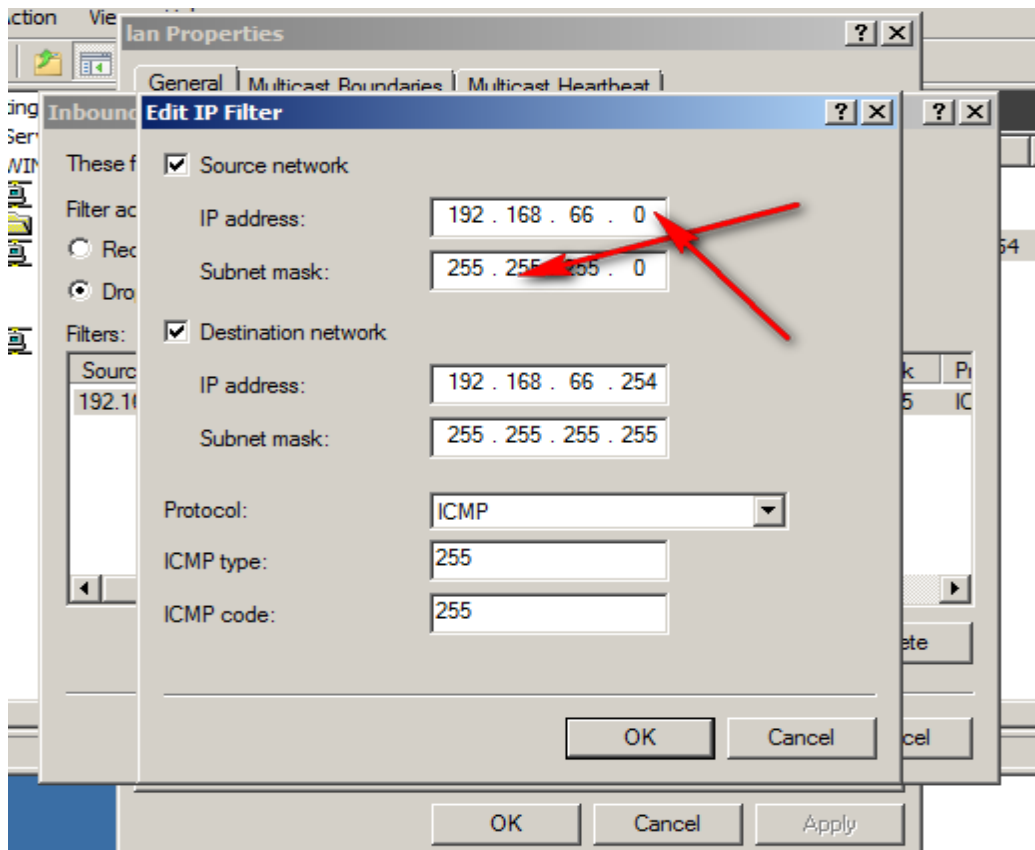
While I can't open my website



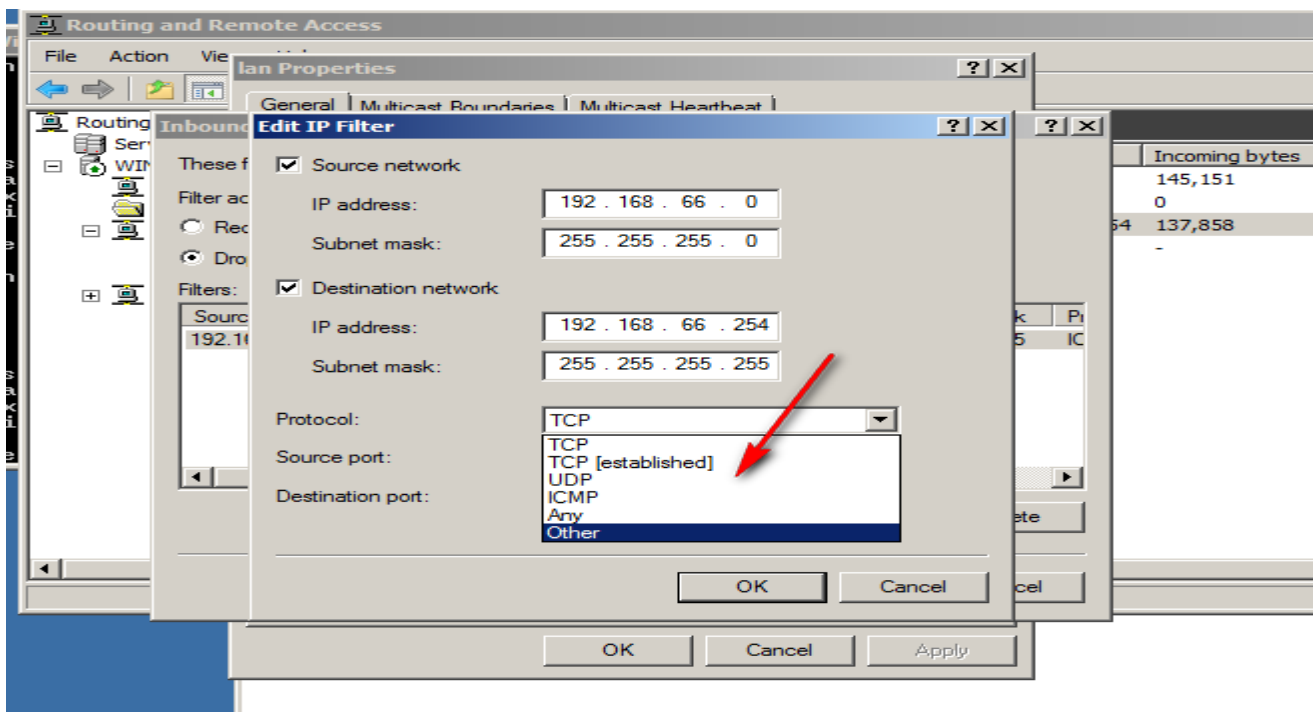
Can't open the web site



Choice all the sub net

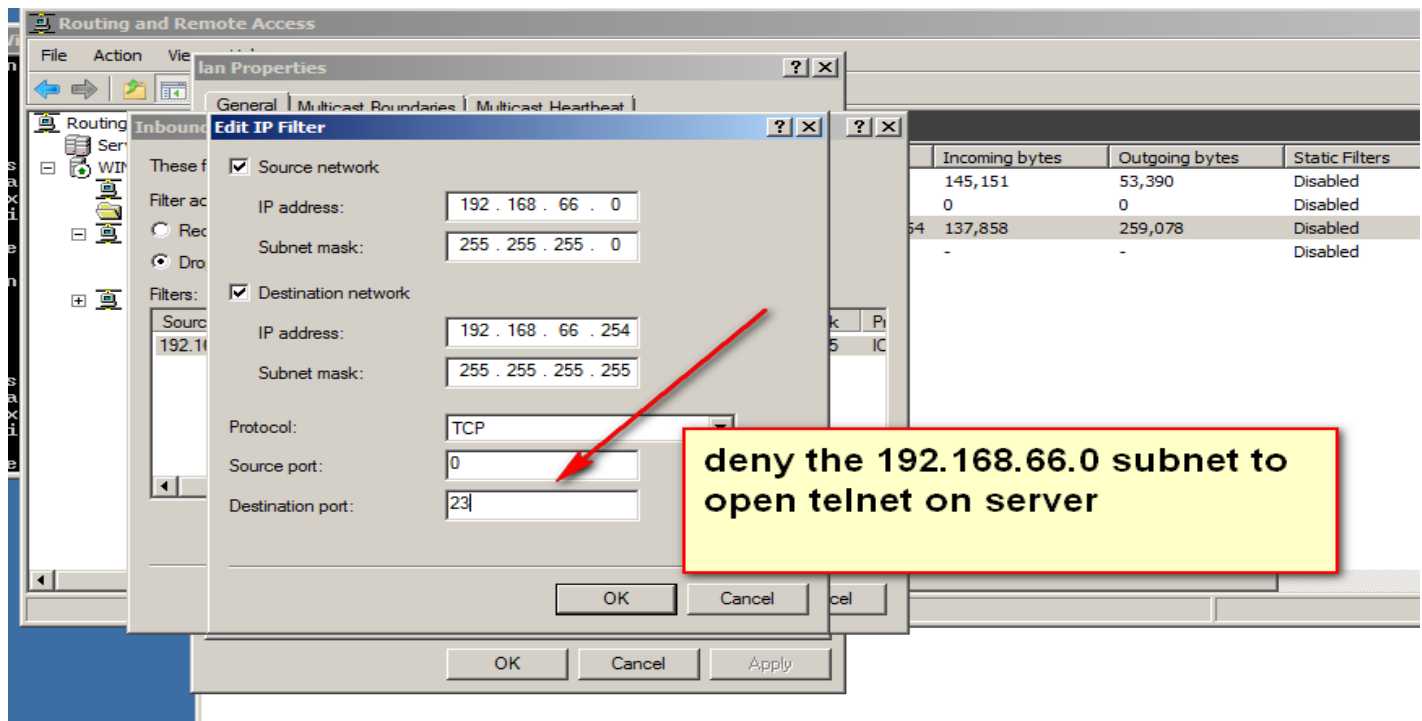


Choice another protocols

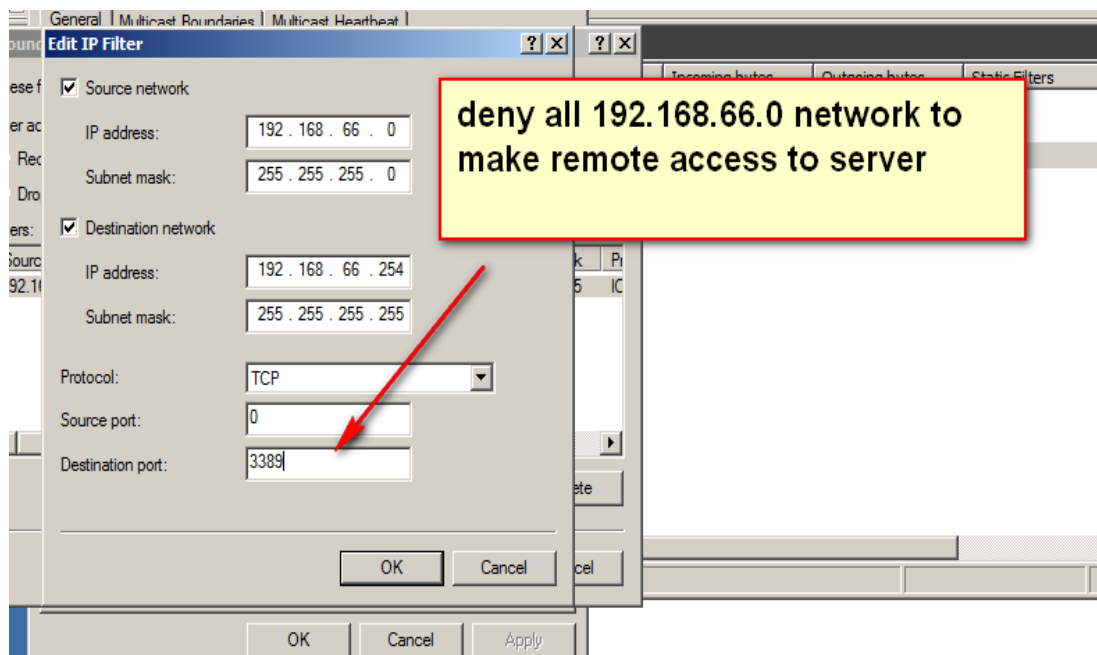


Deny telnet protocol

الآن منع عملية الوصول عن بعد للسيرفير Telnet

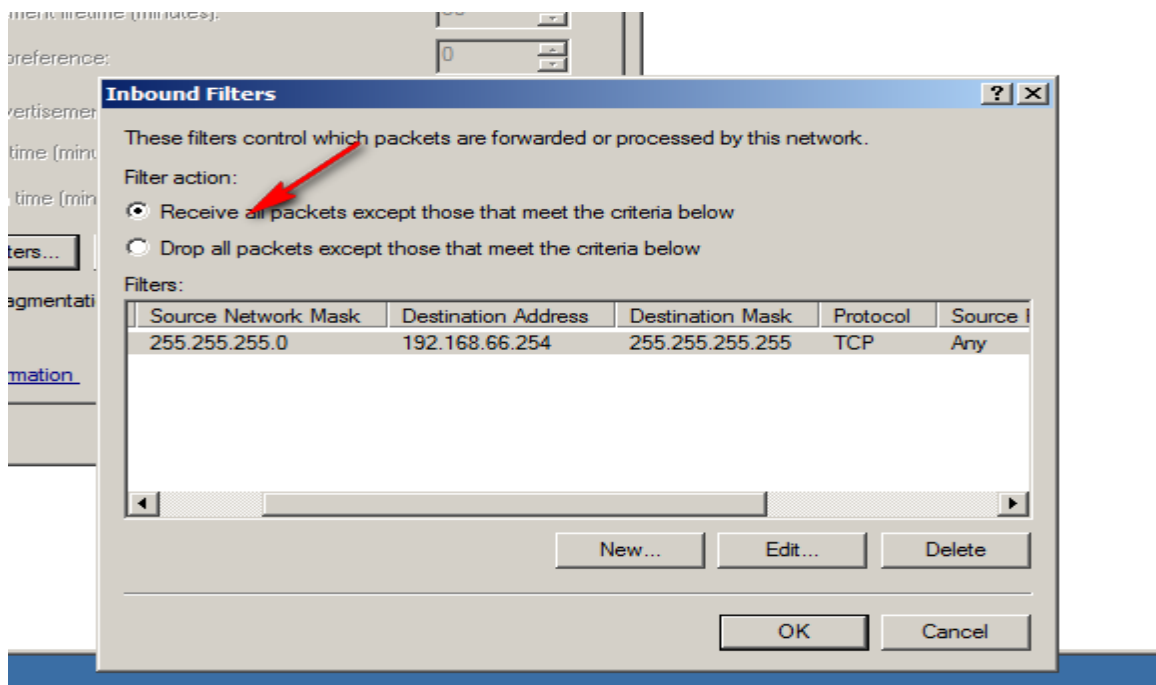
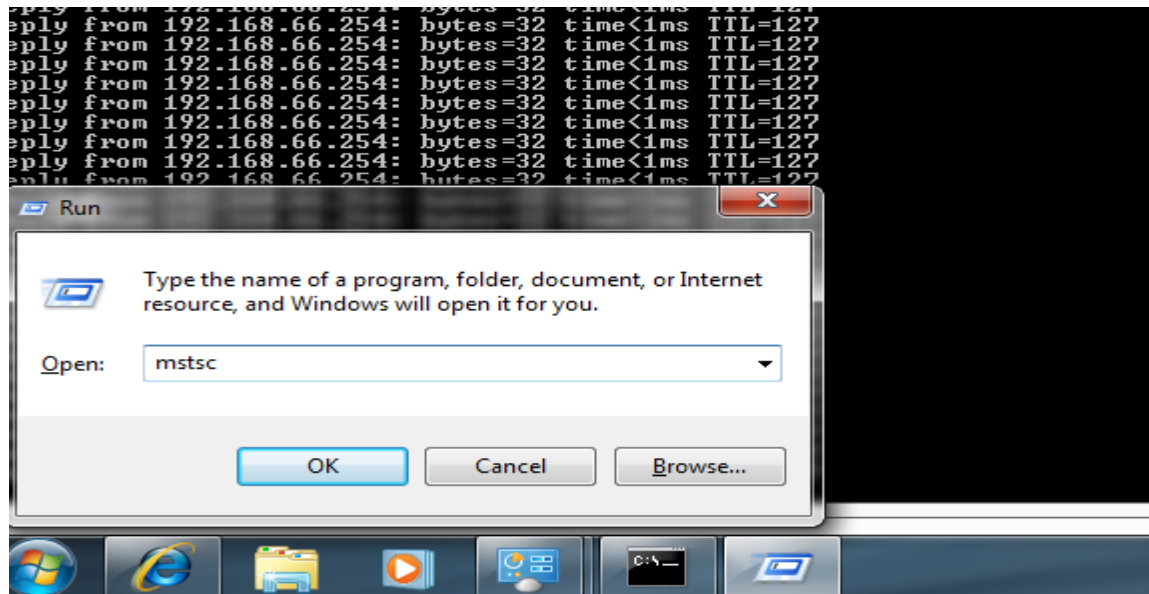


Deny remote access protocol

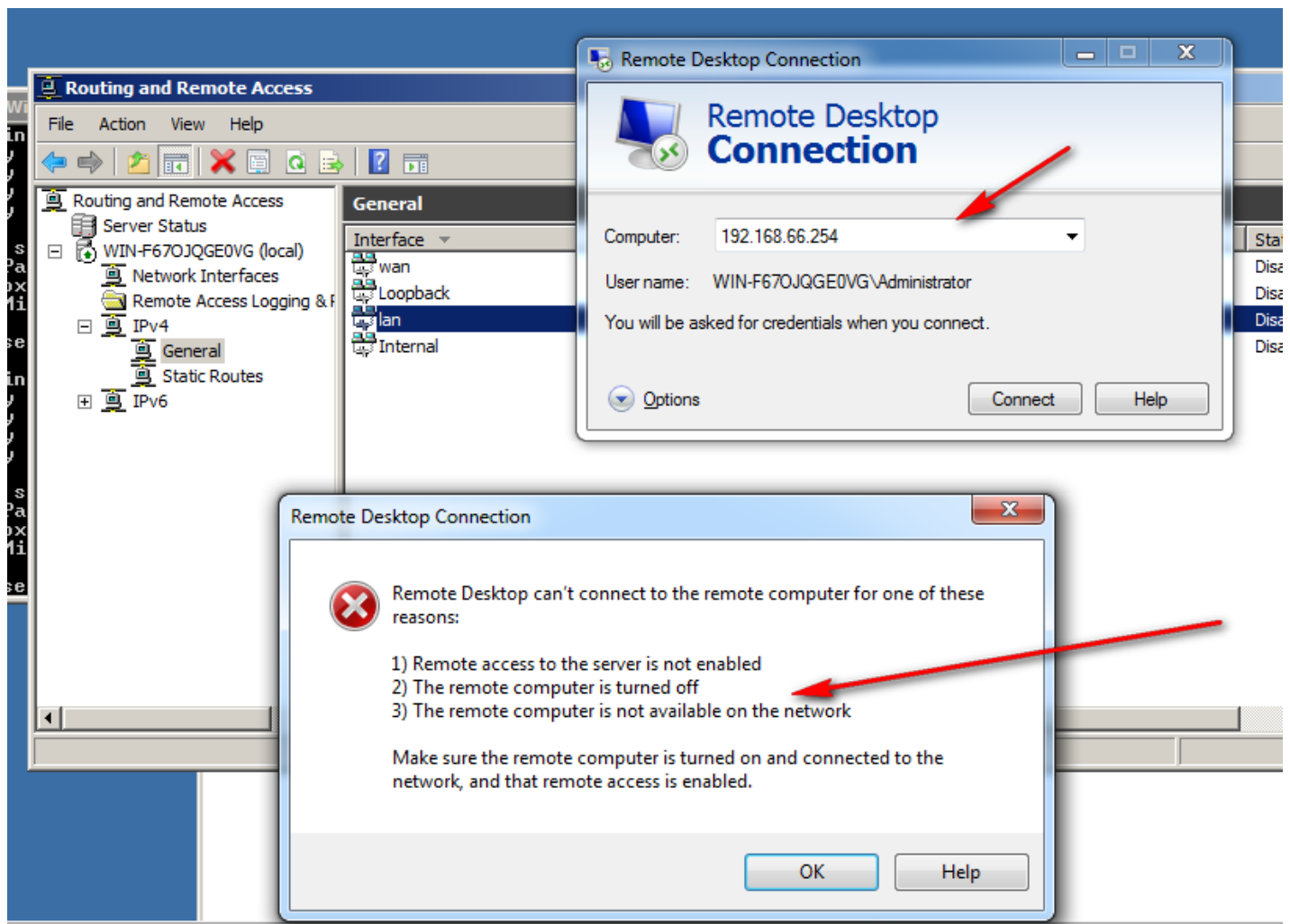
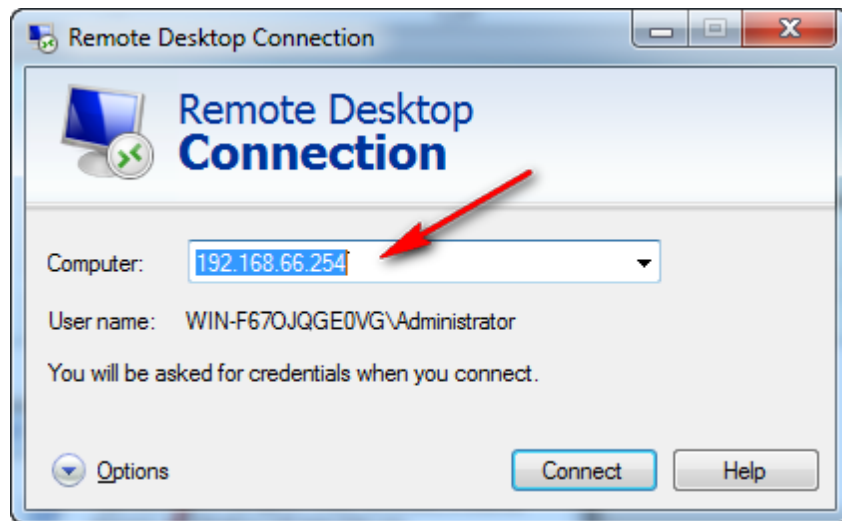


Try make remote access to server

للتأكد من عمل منع عملية Telnet لل server نقوم بالاتي

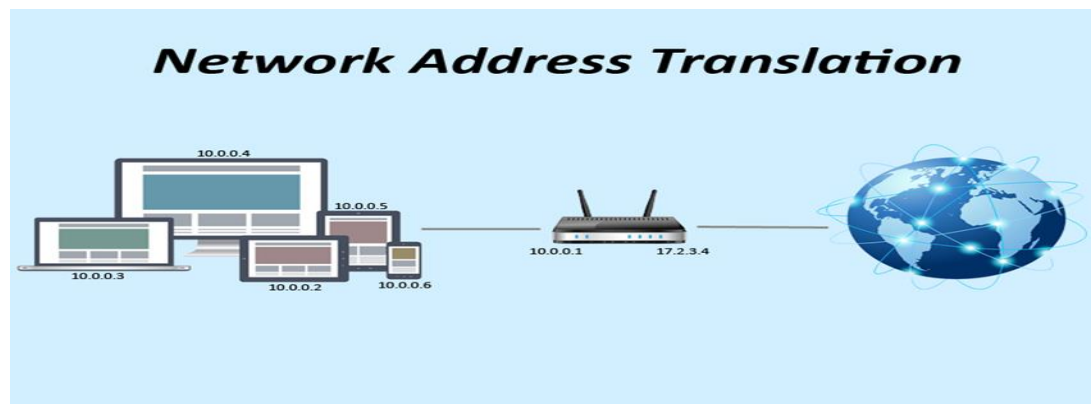
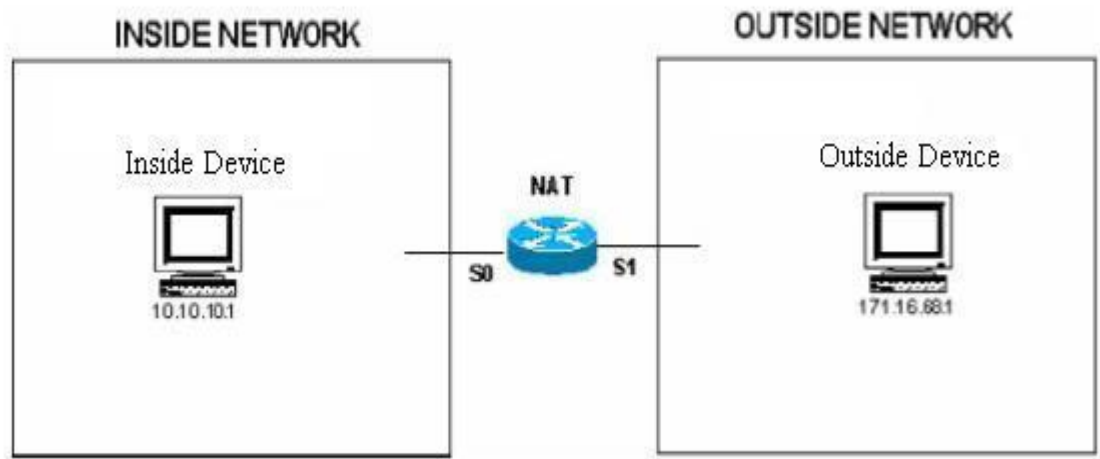


Try make remote access to server



13-Network address translation (NAT)

هو اختصار لـ Network Address Translation، وأبسط تعريف له هو التحويل من عنوان IP إلى آخر. ويتم تشغيله على مداخل الشبكة Gateways كأجهزة الراوتر أو جدران النار firewall أو أجهزة البروكسي. من أكثر الاستخدامات الدارجة حالياً NATJ هو من خلال خطوط الانترنت بهدف تمكين مجموعة من المستخدمين ضمن الشبكة الداخلية والذين لديهم عناوين خاصة Private IP من الدخول إلى الانترنت باستخدام عنوان عام واحد Public IP.



Network Address Translation (NAT) is the process where a network device, usually a firewall, assigns a public address to a computer (or group of computers) inside a private network. The main use of NAT is to limit the number of public IP addresses an organization or company must use, for both economy and security purposes.

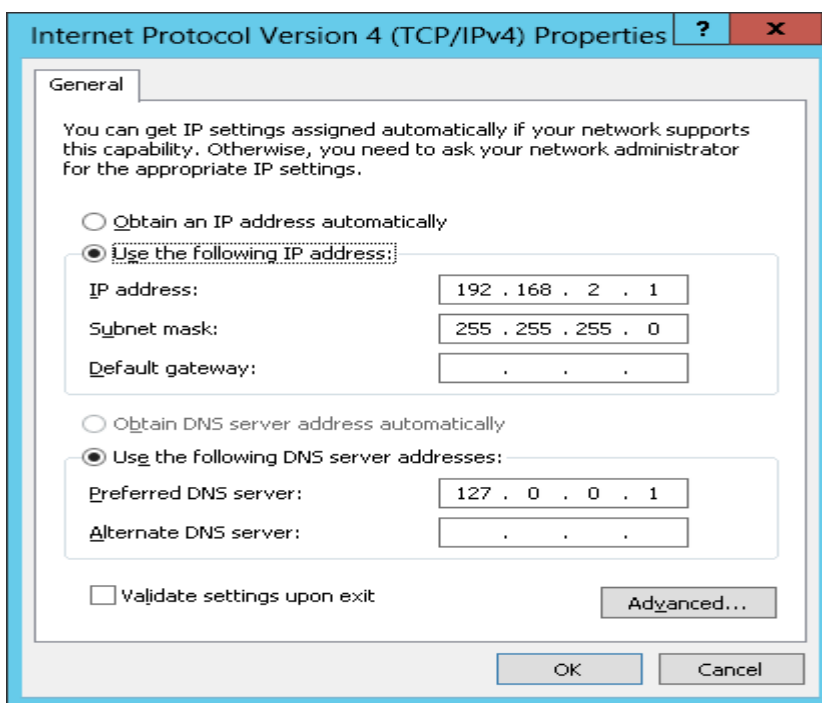
The most common form of network translation involves a large private network using addresses in a private range (10.0.0.0 to 10.255.255.255, 172.16.0.0 to 172.31.255.255, or 192.168.0.0 to

192.168.255.255). The private addressing scheme works well for computers that only have to access resources inside the network, like workstations needing access to file servers and printers. Routers inside the private network can route traffic between private addresses with no trouble.

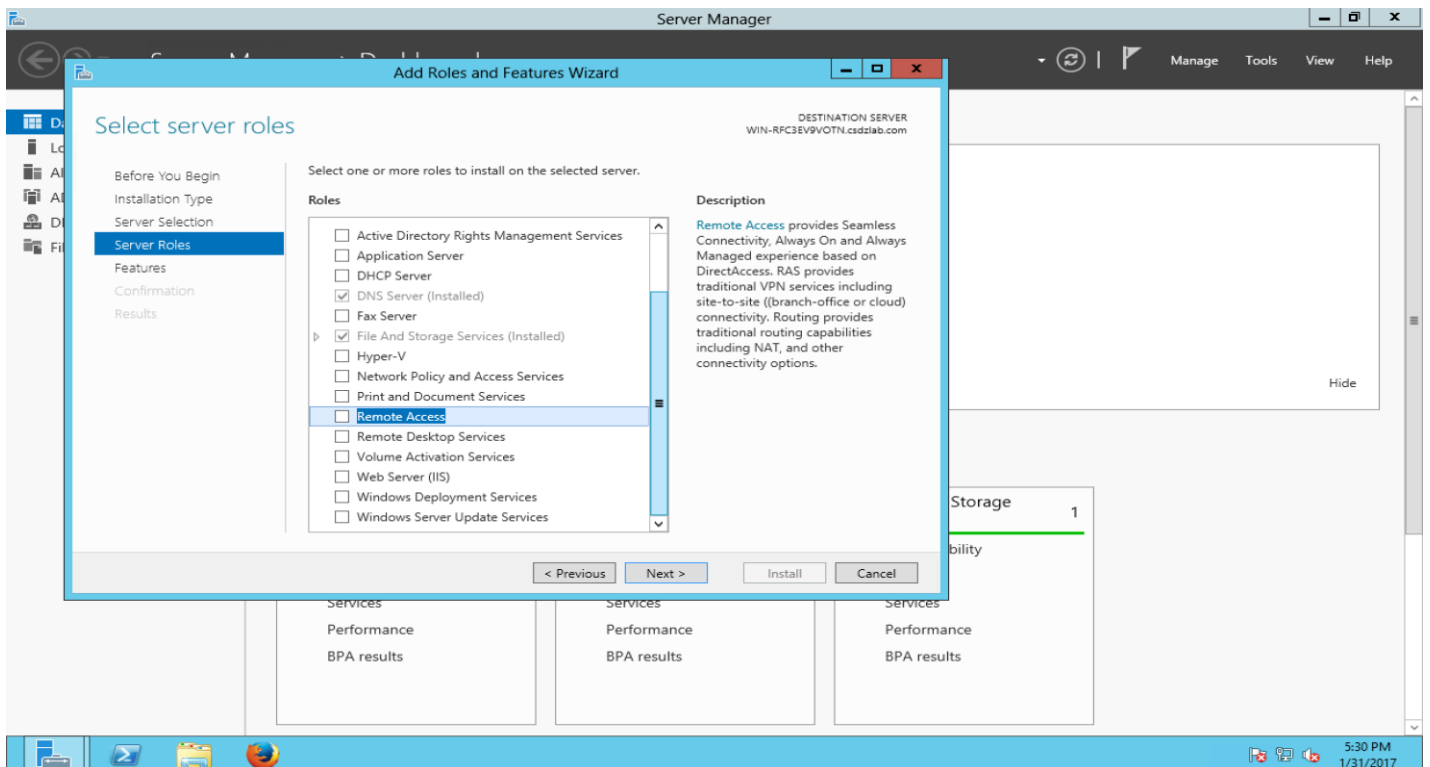
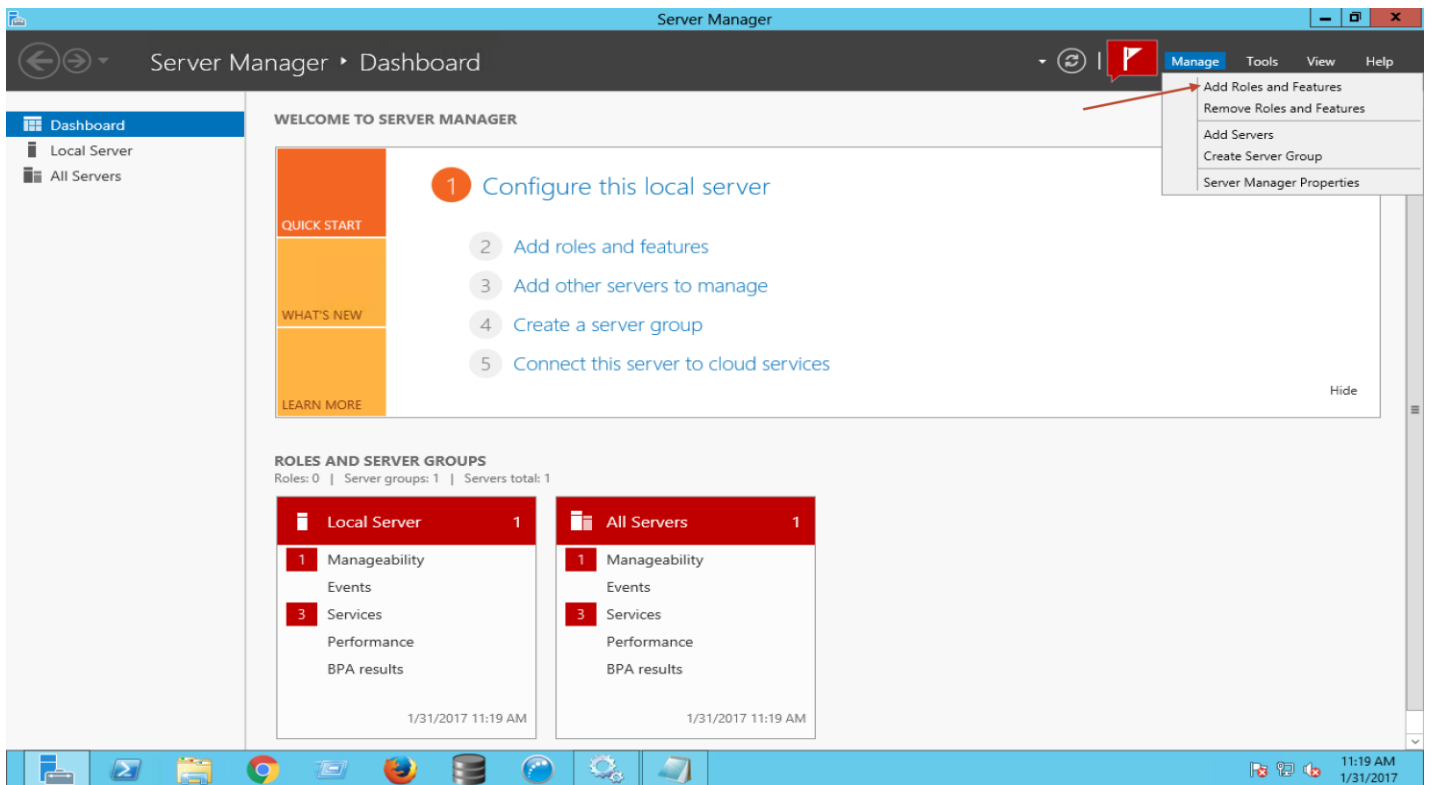
13.1- NAT in windows server 2012

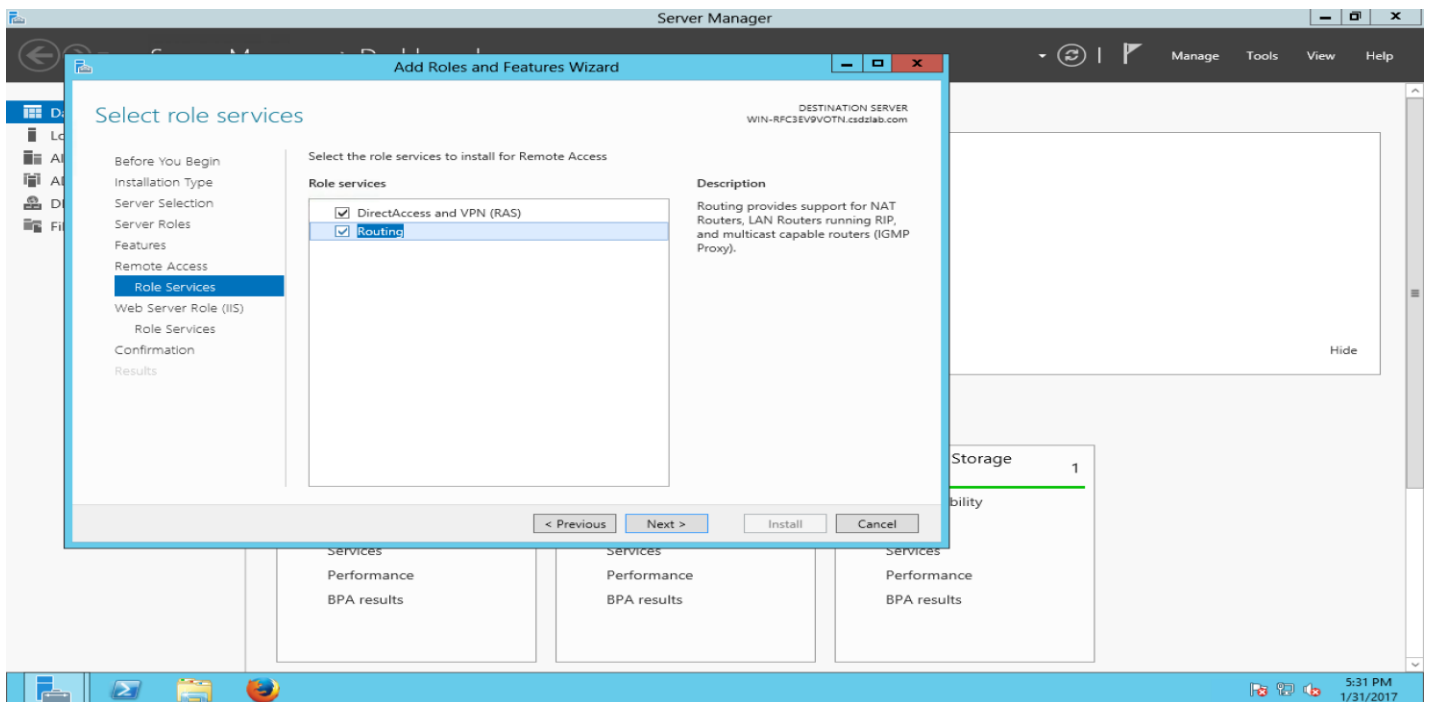
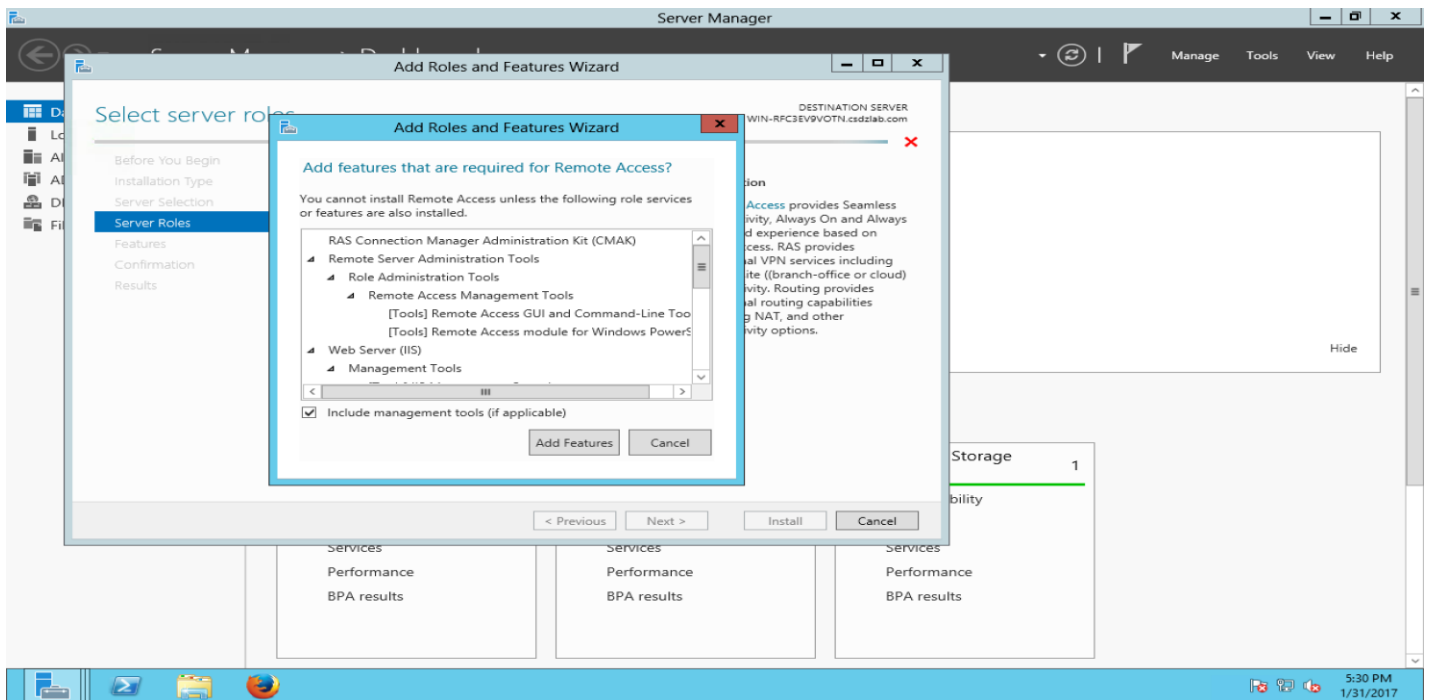
تفعيل NAT في windows server 2012

click on the LAN adapter and select properties. Next, highlight TCP/IPV4 and change the configuration to the one shown below. Note: Do not enter a default gateway for the LAN. Only the WAN should have a default gateway. Make sure the LAN interface is connected to a switch.

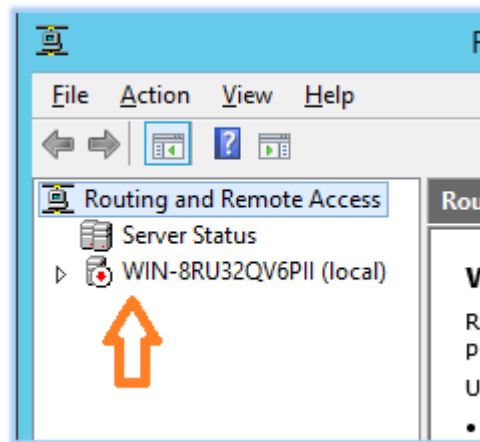


click on server manager and select tools > routing & remote access from the server manager's dashboard.



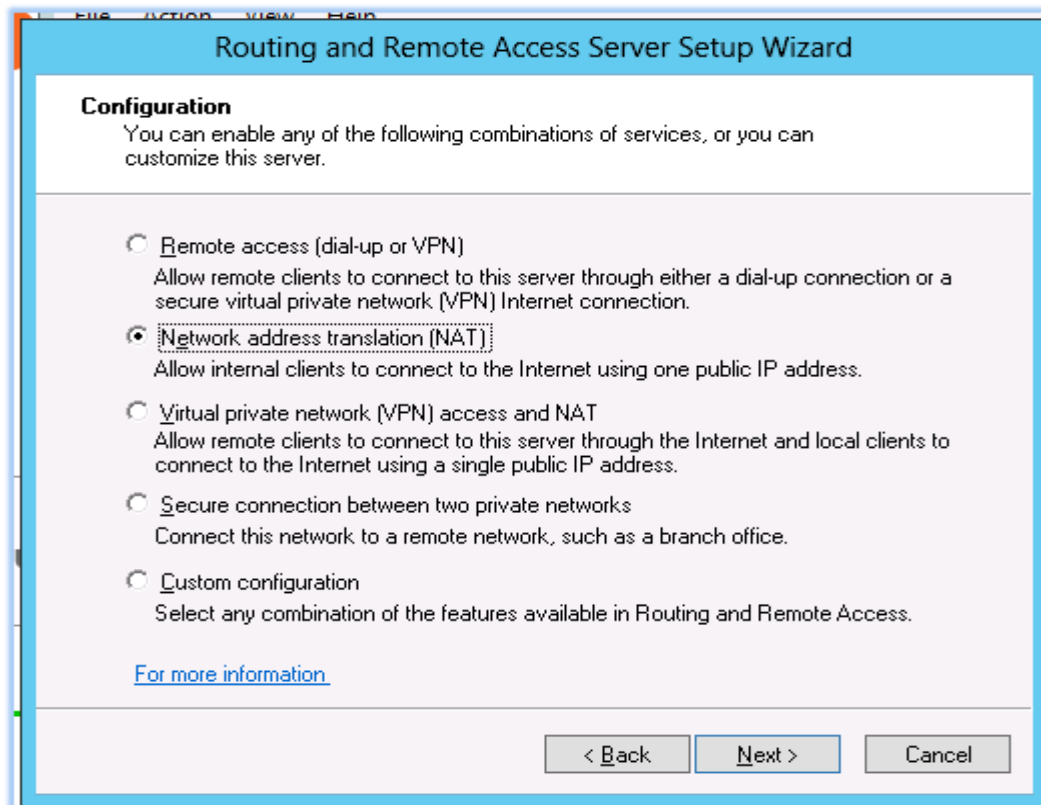


When you finish from install routing and remote access open it

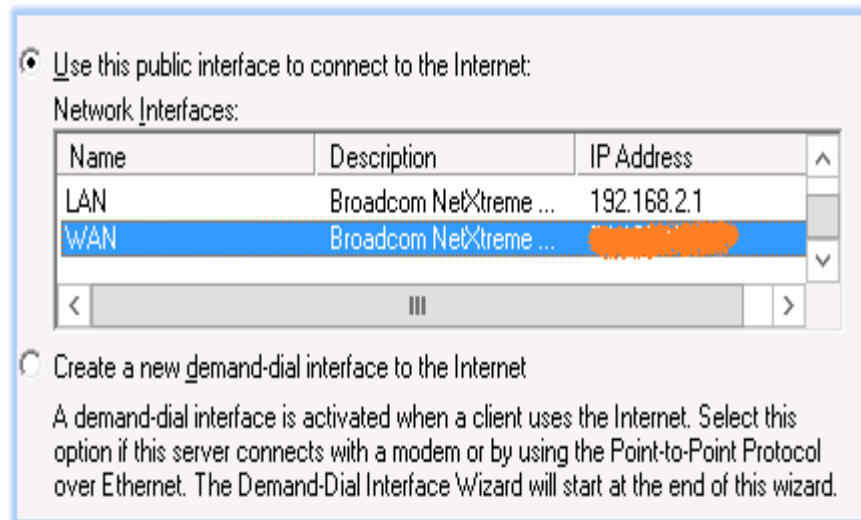


Right click on the server name and select configure and enable routing and remote access.

In the setup wizard, select network address translation (NAT)

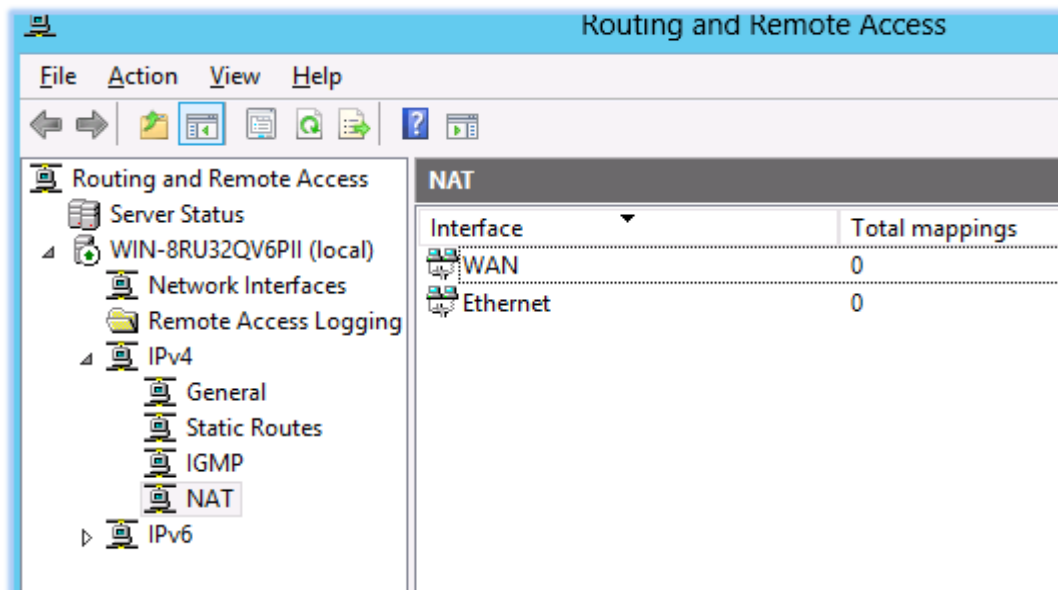


Select the WAN interface as the public interface.

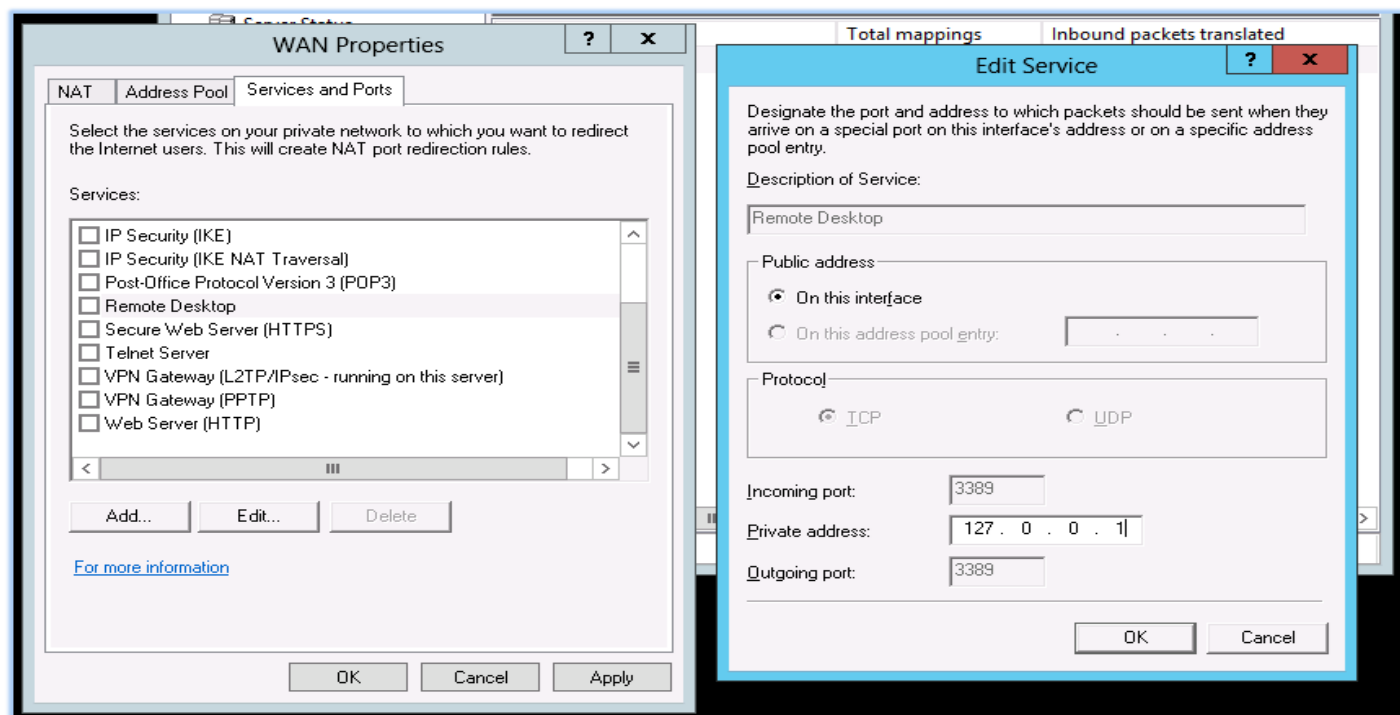


If you get an error that states that you may not be able to connect due to firewall ports being closed, ignore it and continue.

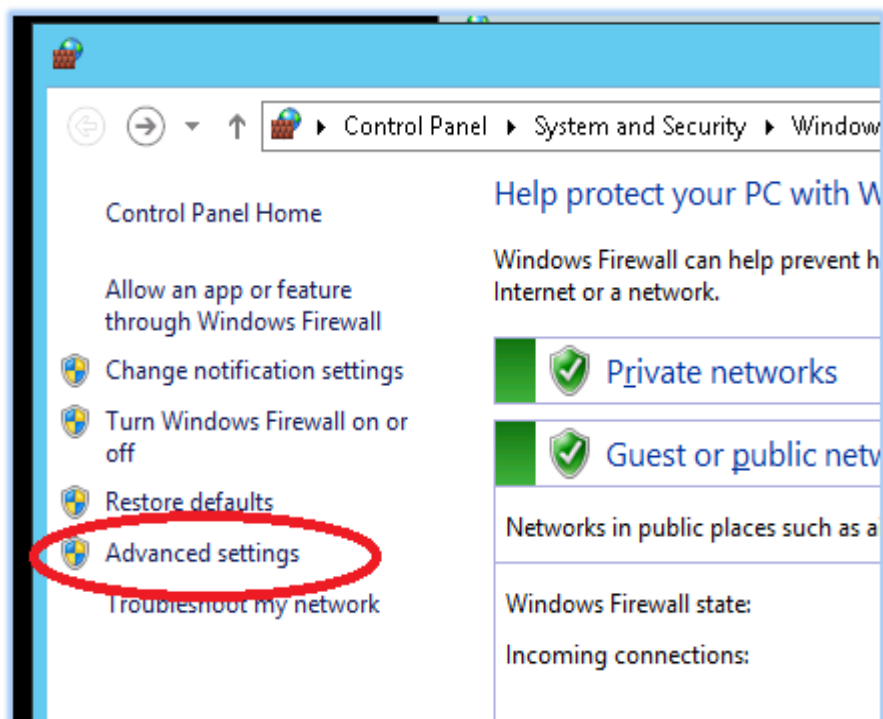
From the routing and remote access console, select IPV4 > NAT.



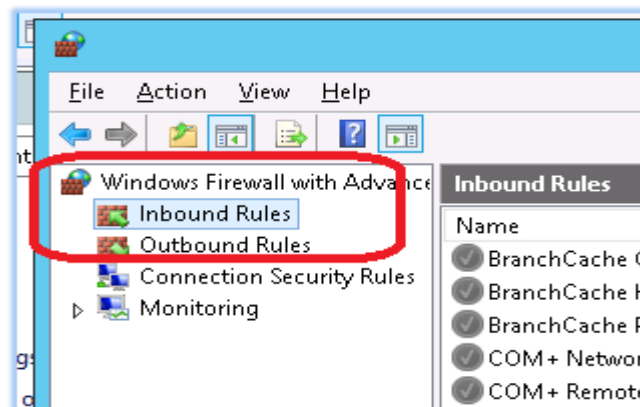
Double click on the WAN interface and select the services and ports tab. This is where you forward ports to your LAN subnet hosts.



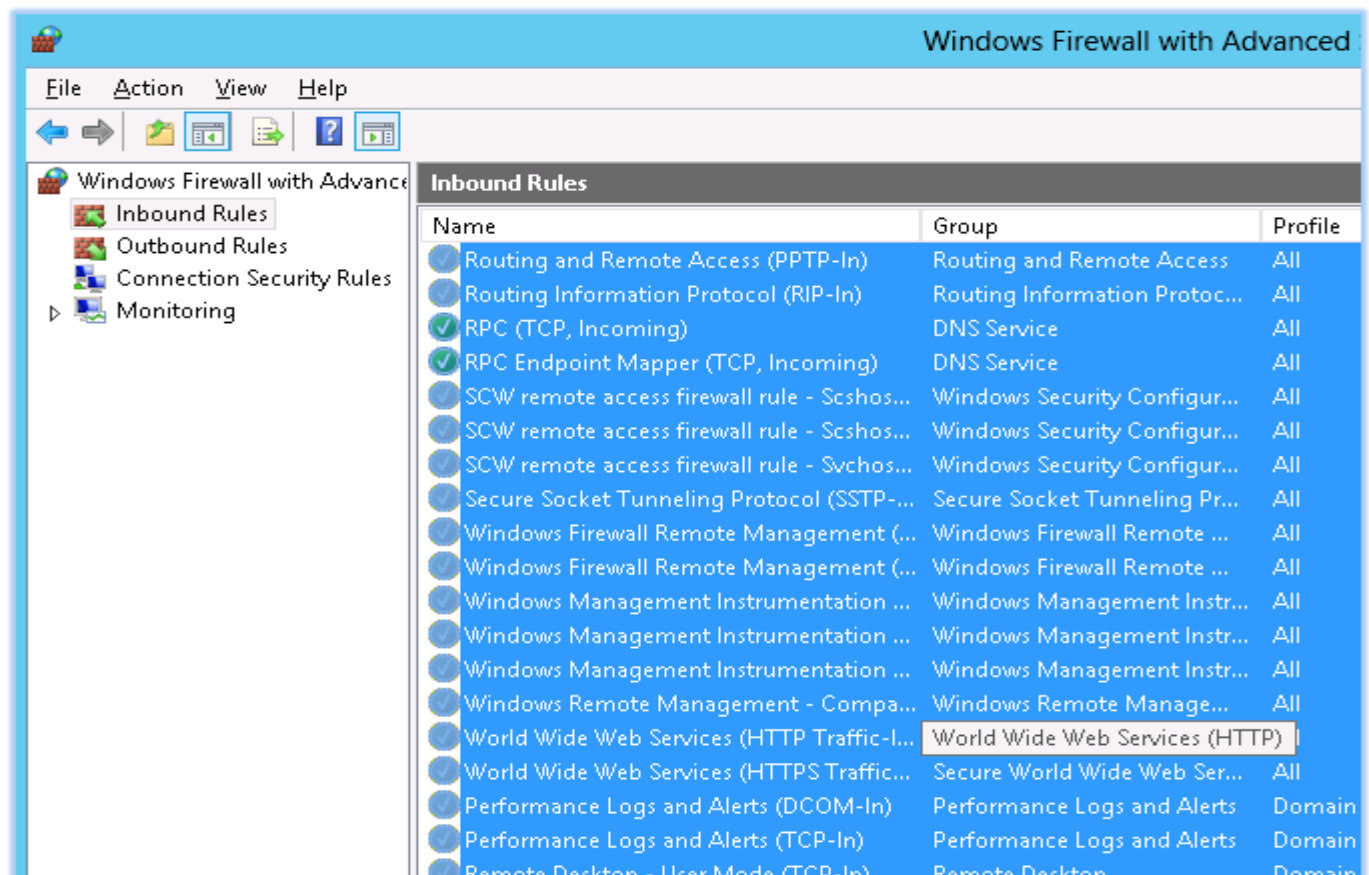
The above image shows the opening of Remote Desktop port 3389 and subsequent forwarding to the server's loopback address (127.0.0.1)



In Windows Firewall with Advanced Security, click on inbound rules.

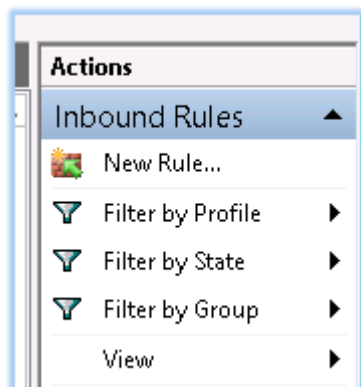


Highlight all of the inbound rules, right click and select delete.



Doing this is the best way to avoid a mental lapse. Delete all the inbound rules and then add one at a time; as you need them.

To add an inbound rule, highlight inbound rule and select new rule from the actions pane.



The new inbound rule wizard will appear. Follow these steps to add a rule for Remote Desktop:

Select a port to allow.

What type of rule would you like to create?

☐ **Program**
Rule that controls connections for a program.

☒ **Port**
Rule that controls connections for a TCP or UDP port.

☐ **Predefined:**
BranchCache - Content Retrieval (Uses HTTP)
Rule that controls connections for a Windows experience.

☐ **Custom**
Custom rule.

Select the protocol and port number.

Does this rule apply to TCP or UDP?

☒ **TCP**

☐ **UDP**

Does this rule apply to all local ports or specific local ports?

☐ **All local ports**

☒ **Specific local ports:**

Example: 80, 443, 5000-5010

Select allow the connection.

What action should be taken when a connection matches the specified conditions?

☒ **Allow the connection**
This includes connections that are protected with IPsec as well as those are not.

☐ **Allow the connection if it is secure**
This includes only connections that have been authenticated by using IPsec. Connections will be secured using the settings in IPsec properties and rules in the Connection Security Rule node.

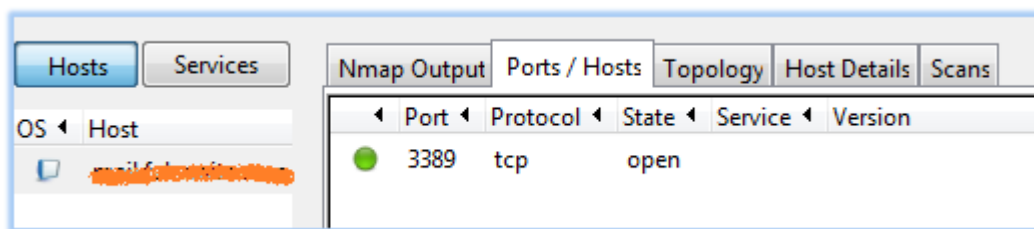
☐ **Block the connection**

Give the rule a friendly name and click finish.

Name:

Description (optional):

After finishing, it's a good idea to run NMap to make sure that only the specified ports are open.



The NMap image above confirms that only RDP-3389 is open.

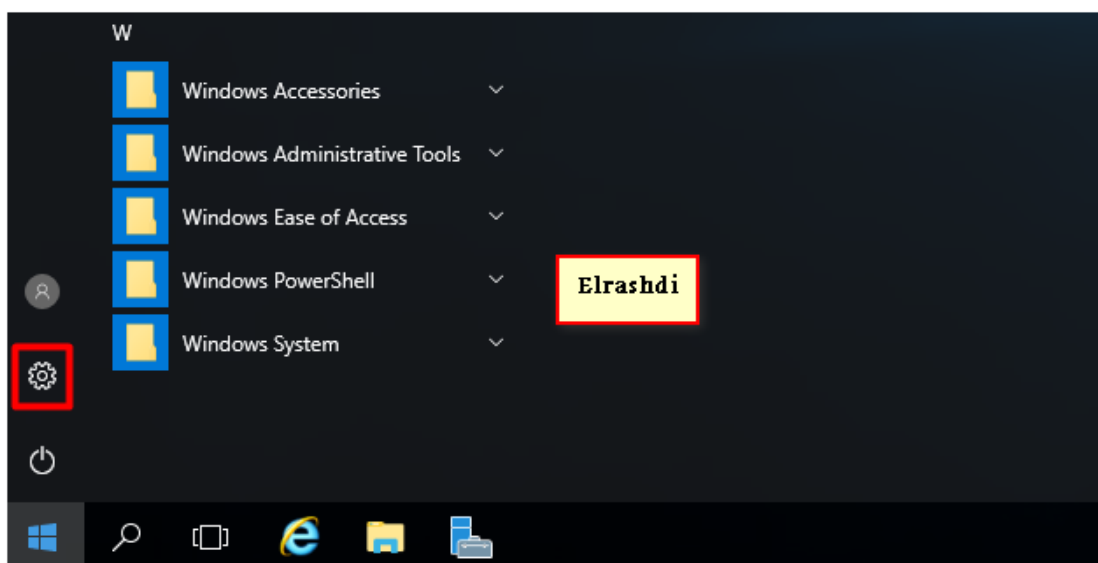
Once finished, connect a client PC to the LAN switch and voila! Your Windows 2012 server is now doing the job of a very capable firewall/router!

13.2- NAT in windows server 2016

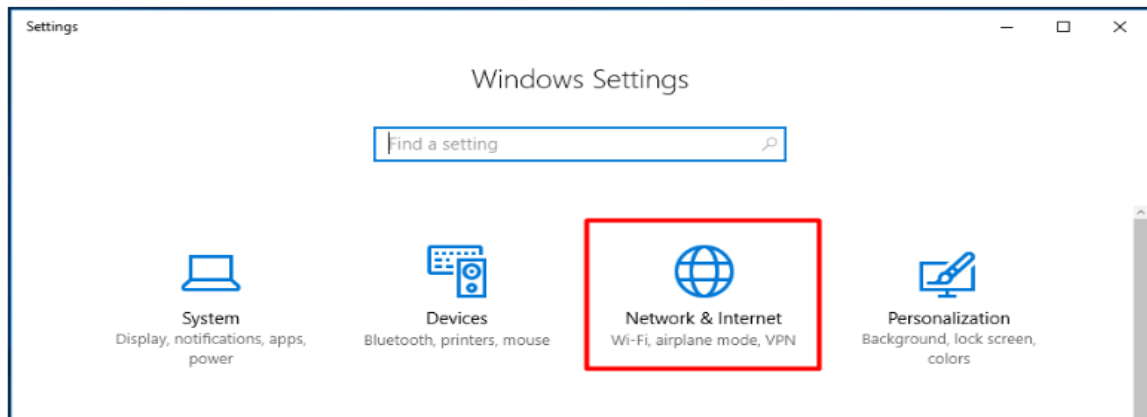
windows server 2016 in NAT تفعيل

Configuring the NICs

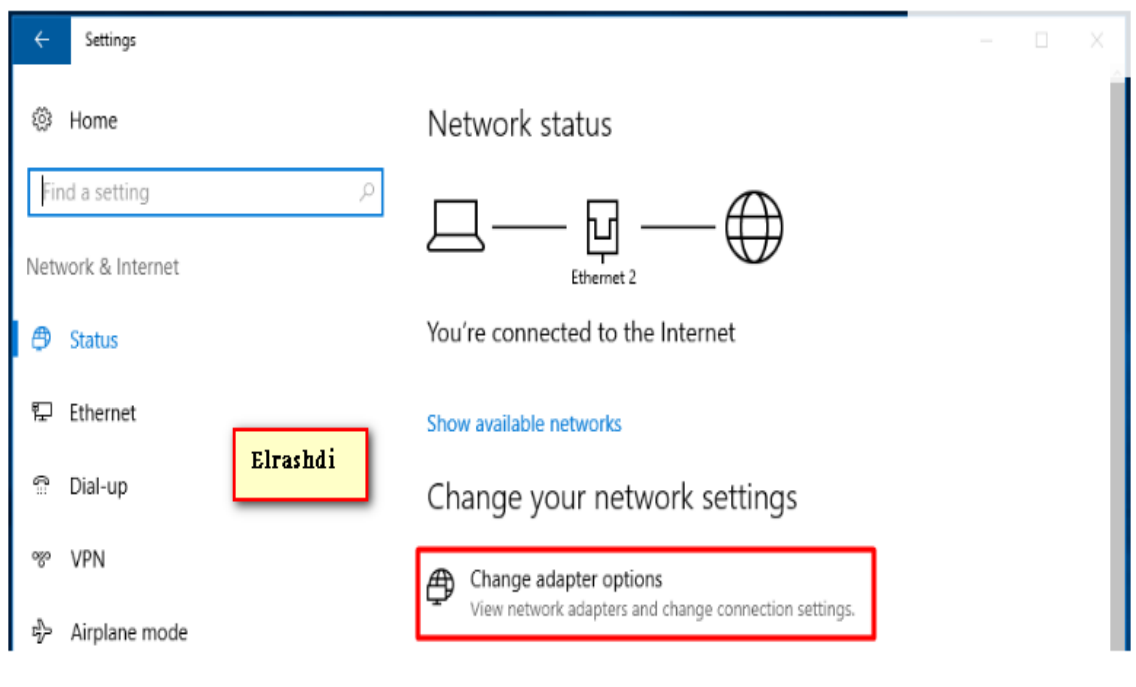
Open “Settings”



Choose “Network & Internet”

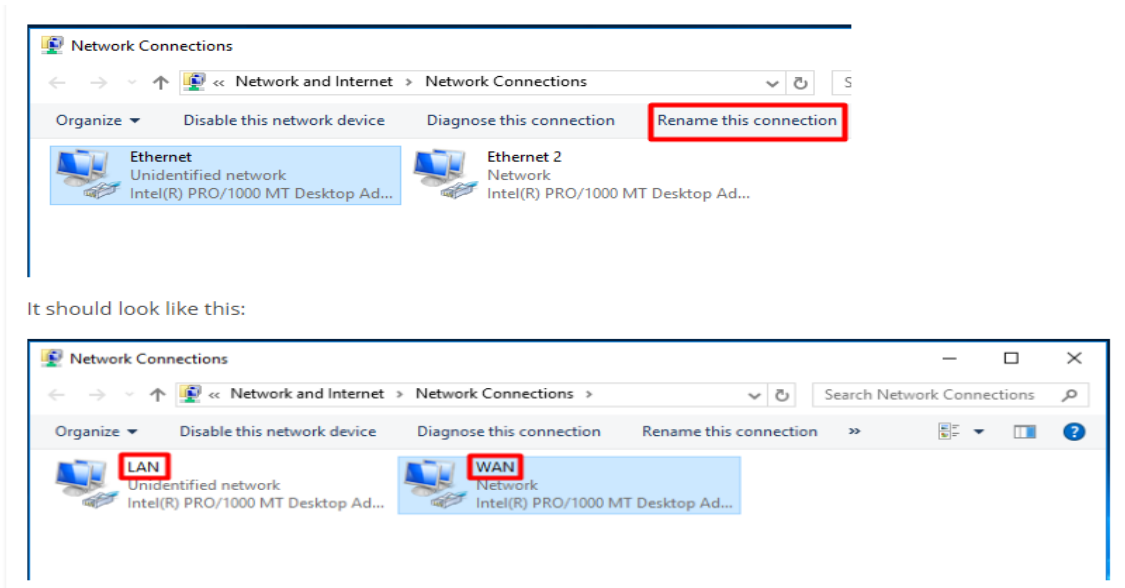


And choose “Change adapter options”

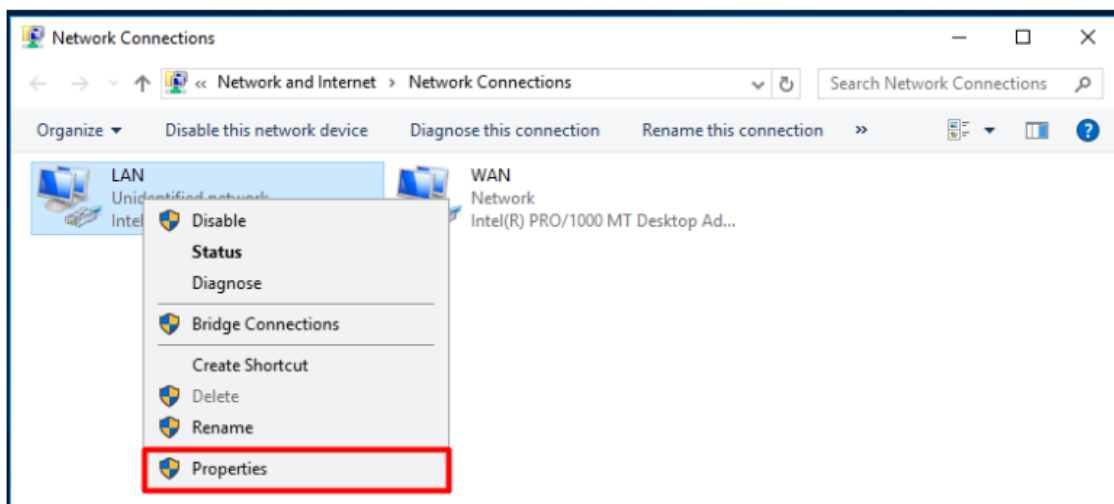


From the “Network Connections” window, it is pretty easy to spot what is the LAN connection (Unidentified network) and the WAN connection (bellow identified as Network). Let’s rename

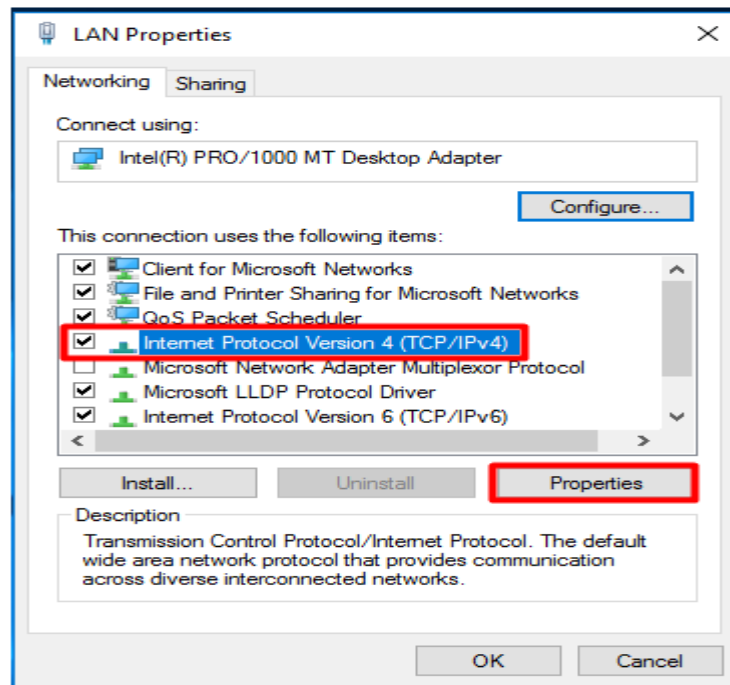
them. Select the connection to rename and press the “Rename this connection” button. Rename them accordingly.



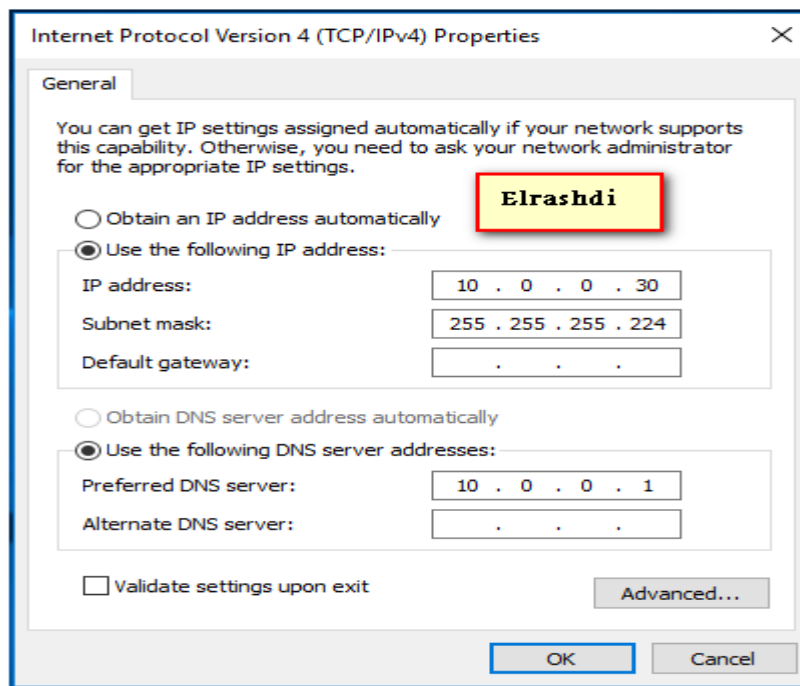
The LAN adapter needs to be configured with a static address, while the WAN adapter should be set to DHCP. The address configured on the LAN adapter is the address the client computers will use as their gateway. Right-click on the LAN adapter and select “Properties”.



Highlight “Internet Protocol Version 4 (TCP/IPv4)” and select “Properties”.



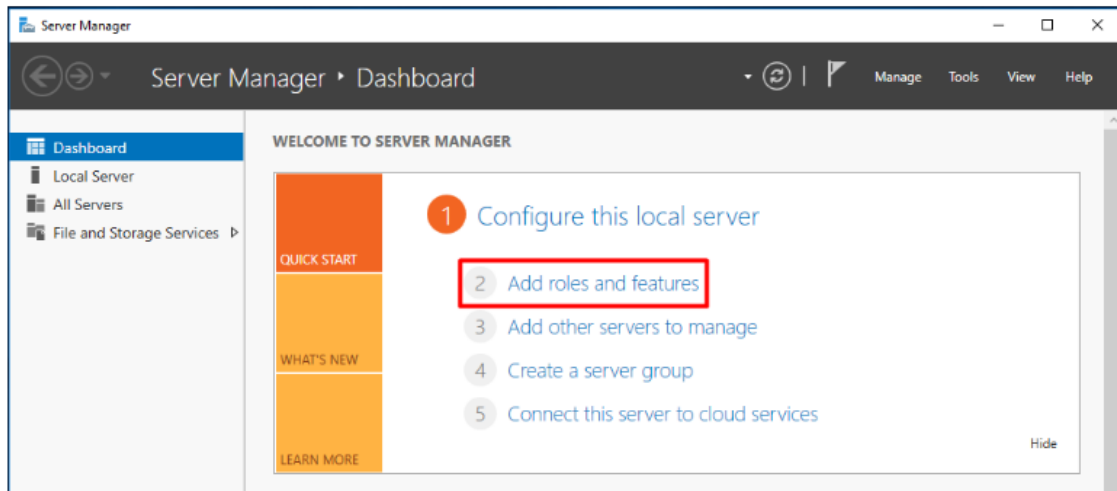
Setup the IP address settings to match your network configuration and press OK. Note that you need to have a DNS server setup on the network. It can be the same server where this role is being installed.



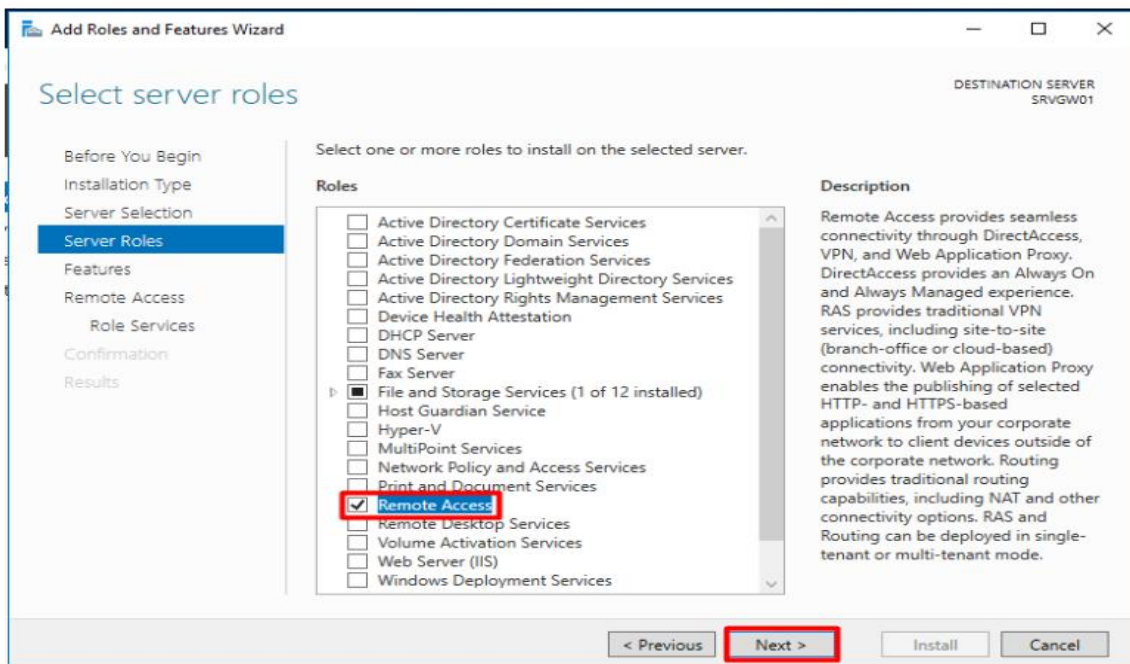
'Adding the "Remote Access" server role

Now it's time to install the "Remote Access" server role. Open Server Manager and select "Add roles and features".

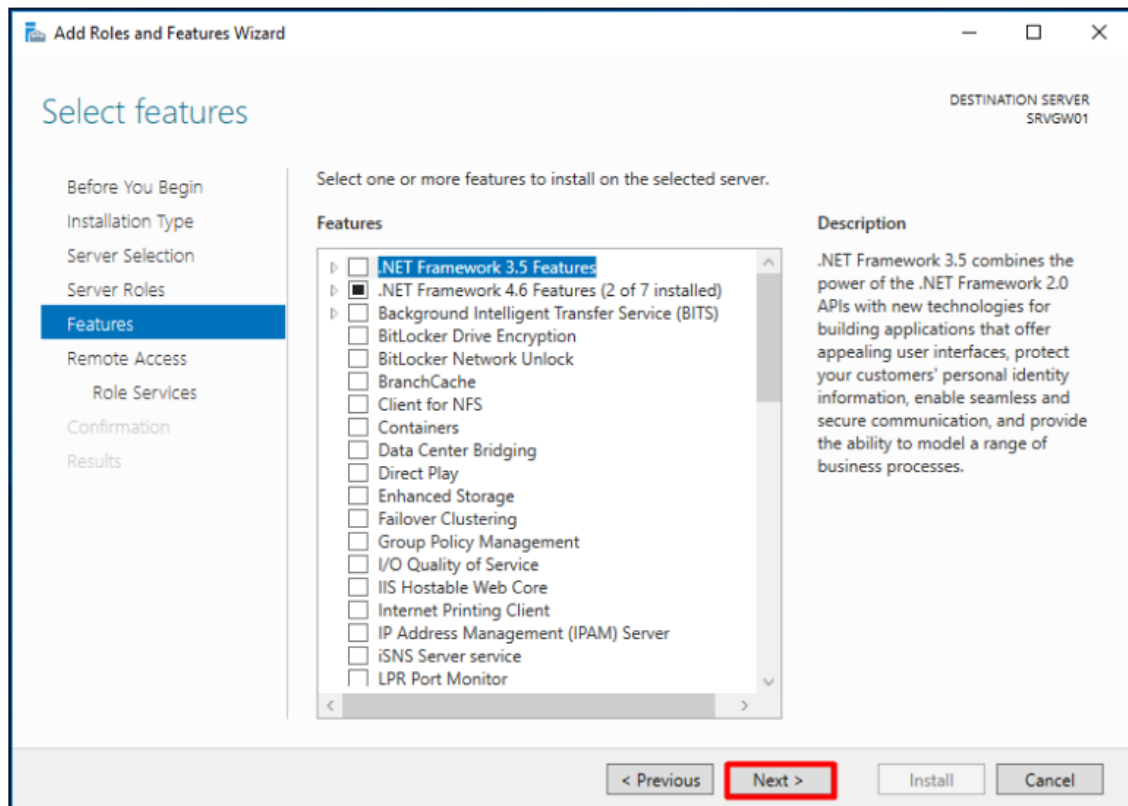
Now it's time to install the "Remote Access" server role. Open Server Manager and select "Add roles and features"



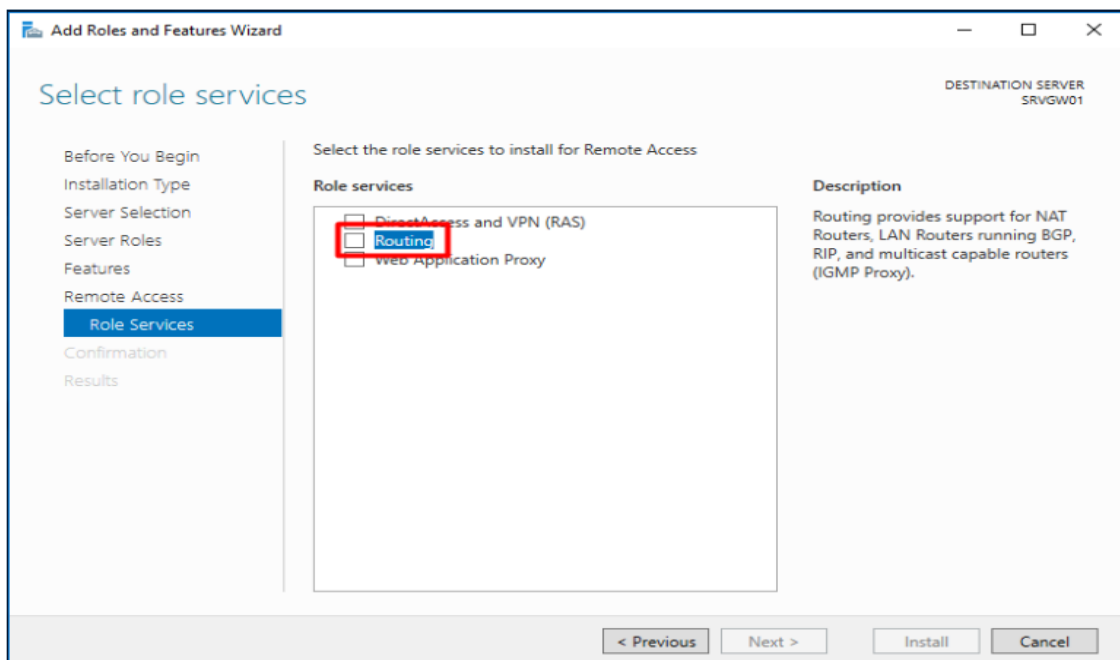
Press "Next" until you reach the screen below. Select the "Remote Access" role and press "Next".



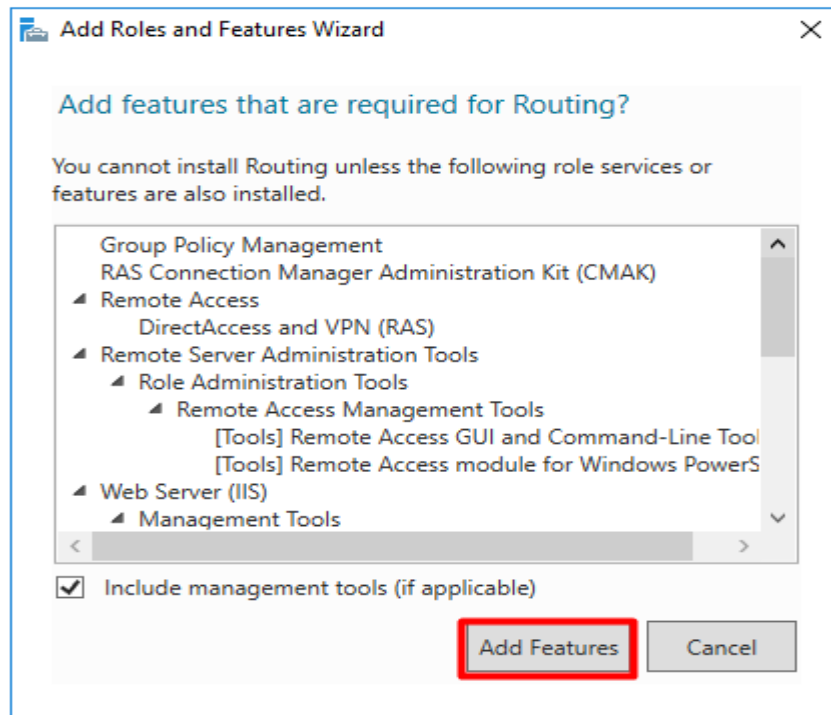
Press "Next" at the following screen.



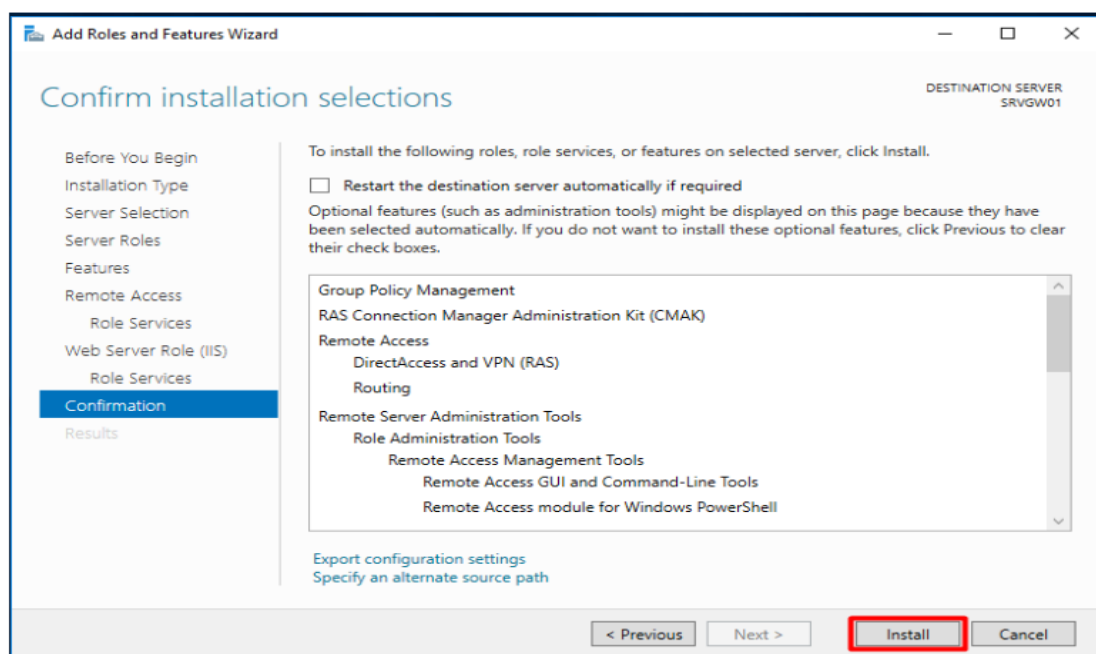
Press “Next” and then select “Routing”, as shown below:



Click on “Add Features”.

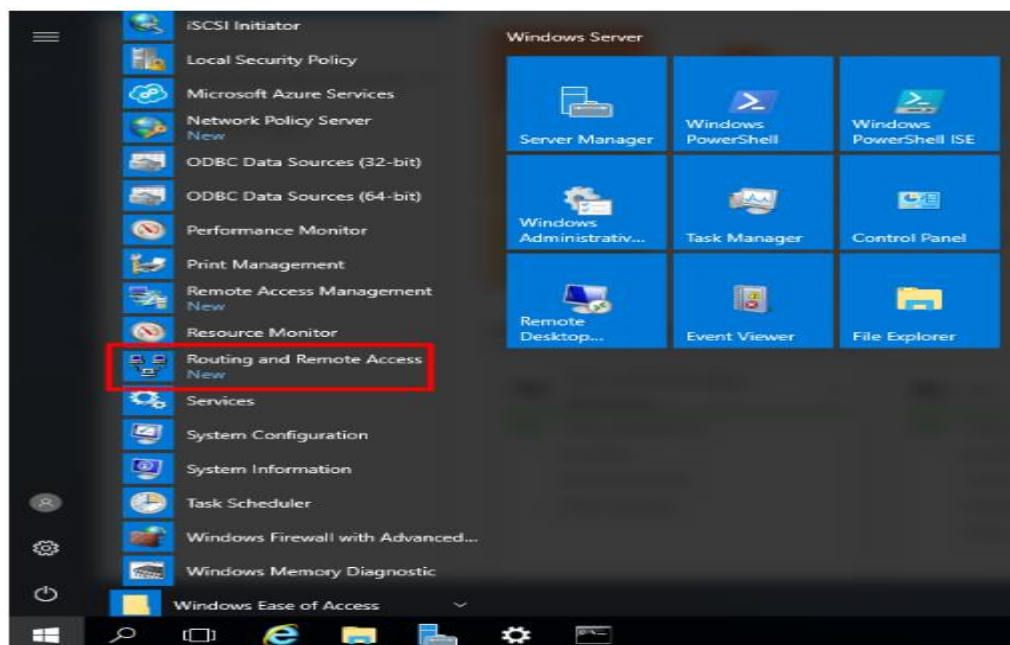


Go till the end of the wizard by pressing “Next”. Press “Install” at the confirmation screen.

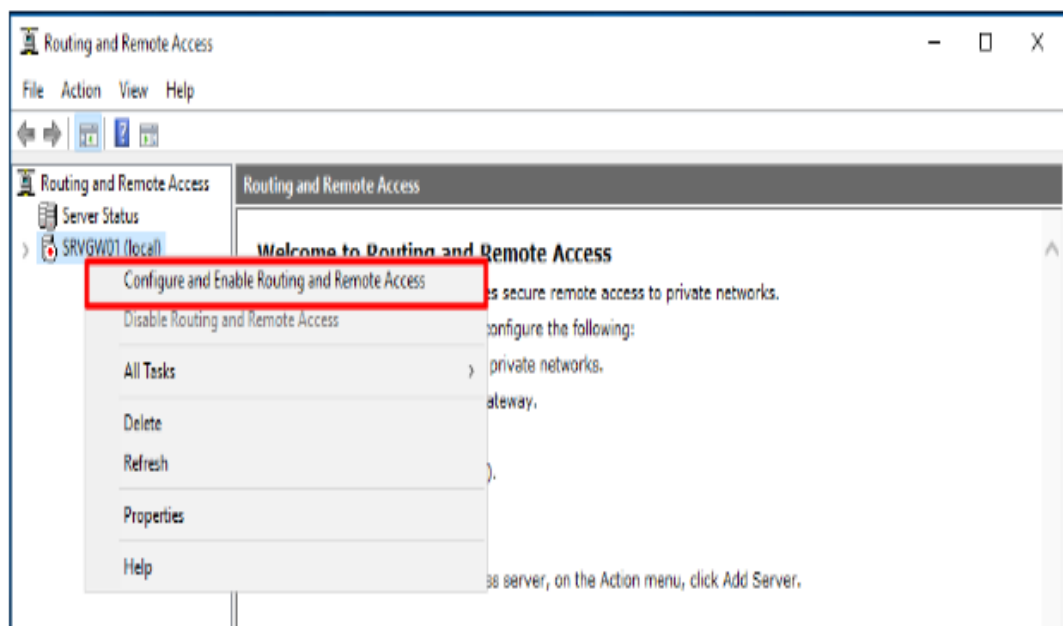


Configuring the “NAT router”

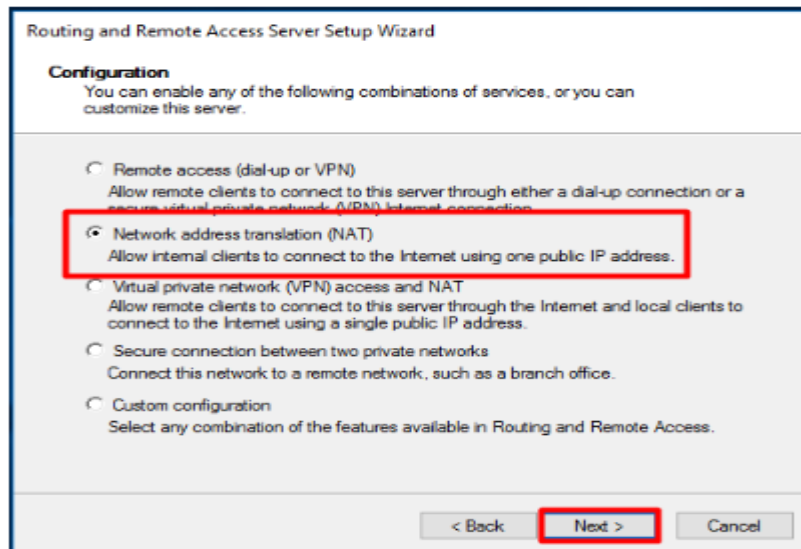
Wait for the installation to finish and open the “Routing and Remote Access” console. Press “Start” and under “Windows Administrative Tools” find “Routing and Remote Access”.



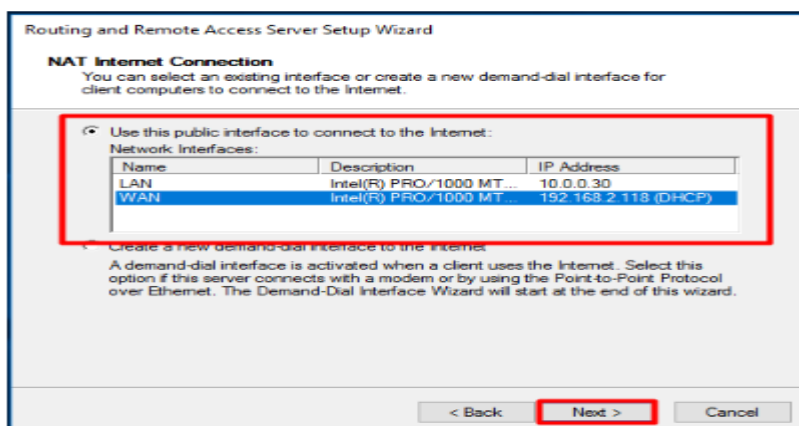
Right-click on the server name and select “Configure and Enable Routing and Remote Access”.



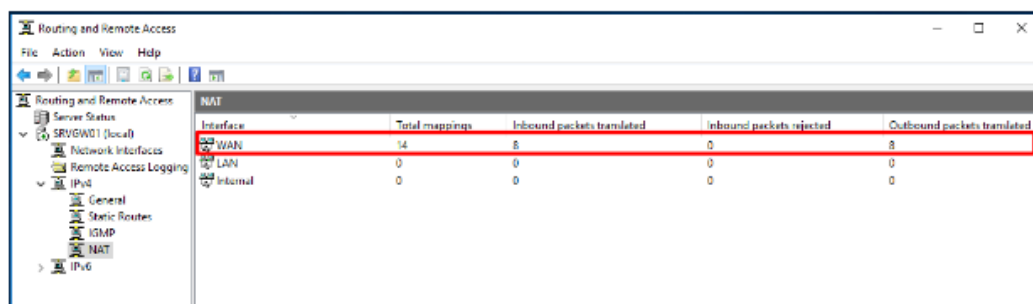
Press “Next” at the wizard welcome screen. Choose “Network address translation (NAT)” and press “Next”.



Select the WAN adapter and press “Next”.



Press “Finish”, wait for the configuration to finish and verify that the NAT router is working properly. Expand the IPv4 node, select “NAT” and you should see that packets have been translated.

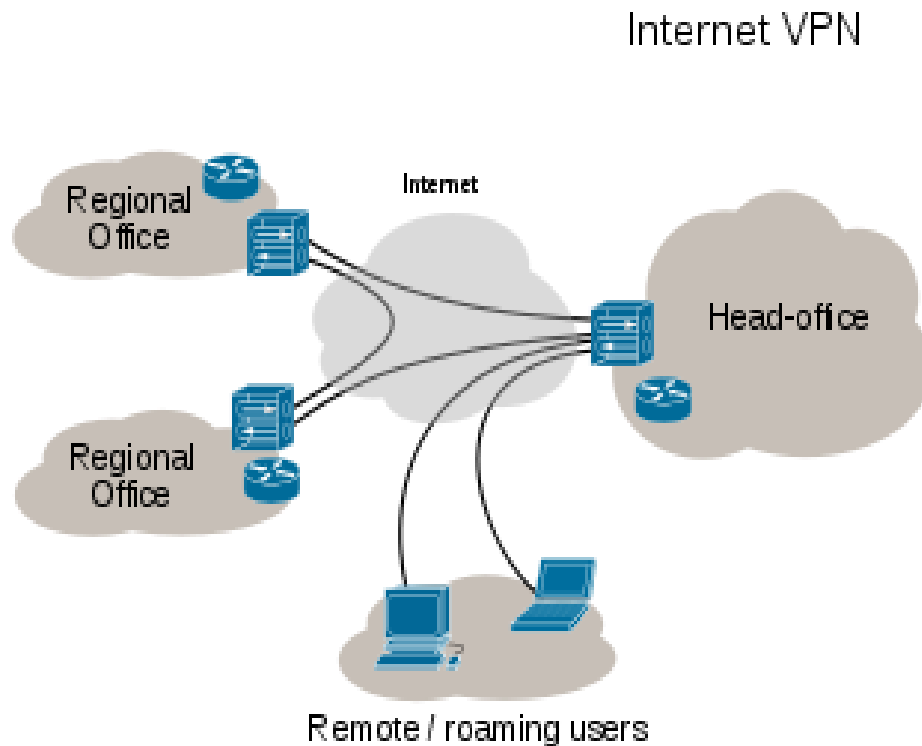


14-Virtual private network (VPN)

هي إحدى الوسائل المهمة VPN وتختصر عادة بـ (Virtual Private Network) الشبكات الافتراضية الخاصة للاتصال بالإنترنت بشكل آمن، حيث تقوم بالمحافظة على بيانات المستخدمين ونشاطاتهم مخفية ومشفرة، وهي أفضل الطرق لحماية هويتكم والمعلومات التي تتداولونها على الإنترنت من تجسس مزودي خدمة الإنترنت والحكومات. وتقوم الشبكات الخاصة الافتراضية بتشفير الاتصال بالإنترنت عبر إنشاء تمر جميع اتصالاتكم بما فيها تصفح المواقع وبرامج VPN بين جهازكم ومزود خدمة الـ (Tunnel) نفق وهمي لبياناتكم يعني عدم المحادثة والشبكات الاجتماعية عبر هذا النفق الوهمي الآمن، وتشفير هذا النفق قدرة أي أحد على اعتراضها

A virtual private network (VPN) is a technology that creates a safe and encrypted connection over a less secure network, such as the internet.

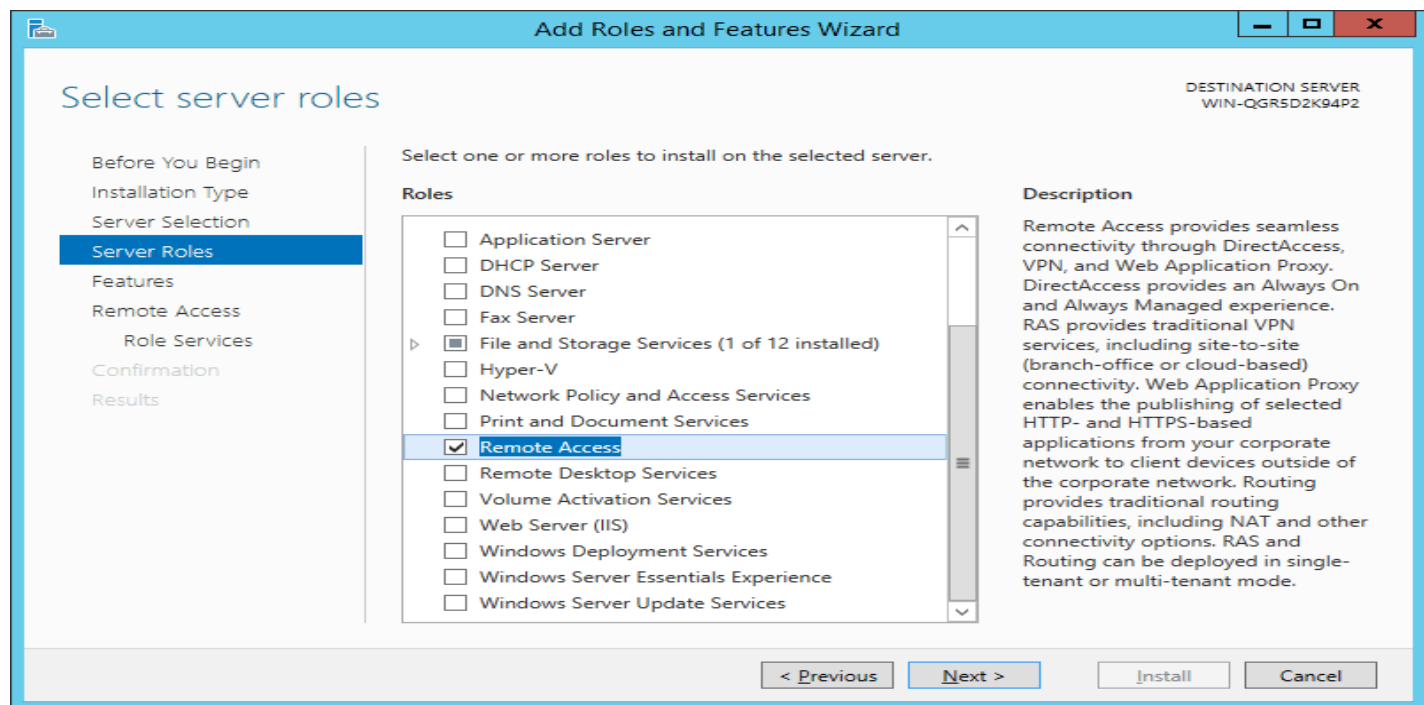
VPN technology was developed as a way to allow remote users and branch offices to securely access corporate applications and other resources. To ensure safety, data travels through secure tunnels, and VPN users must use authentication methods -- including passwords, tokens or other unique identification procedures -- to gain access to the VPN server.



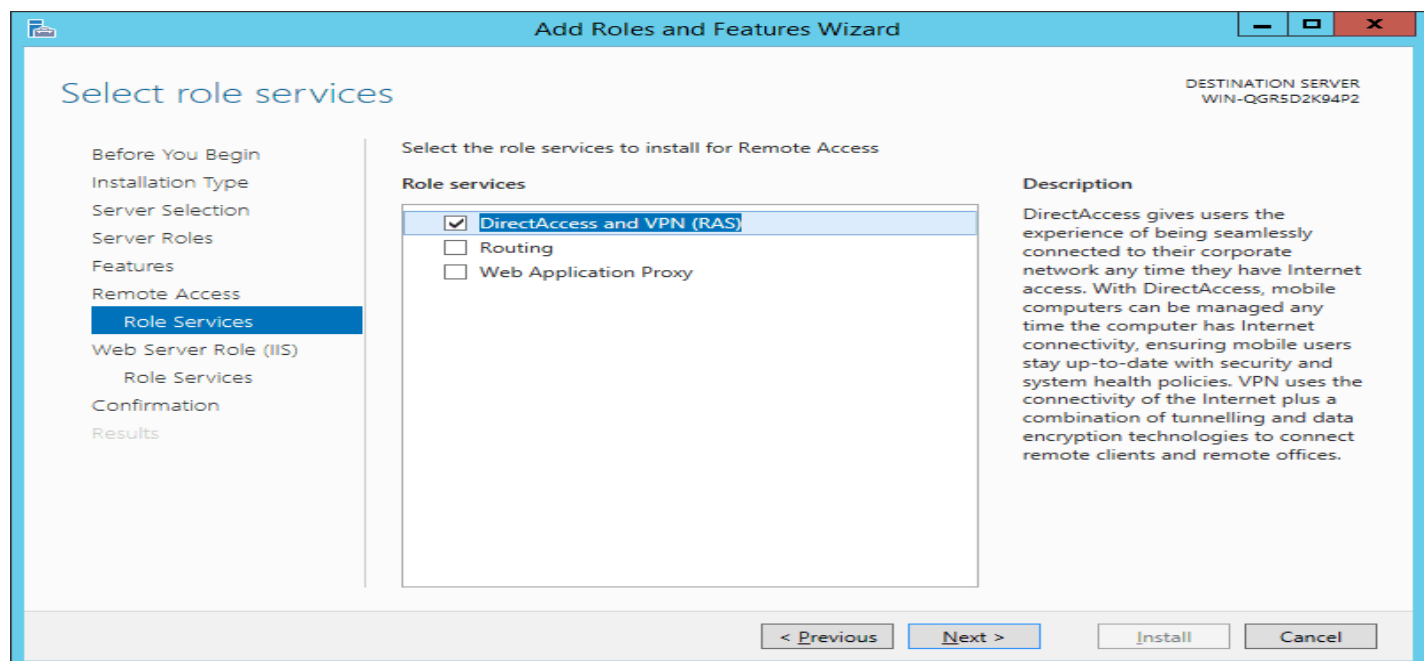
14.1-VPN in windows server 2012

تفعيل VPN داخل windows server 2012

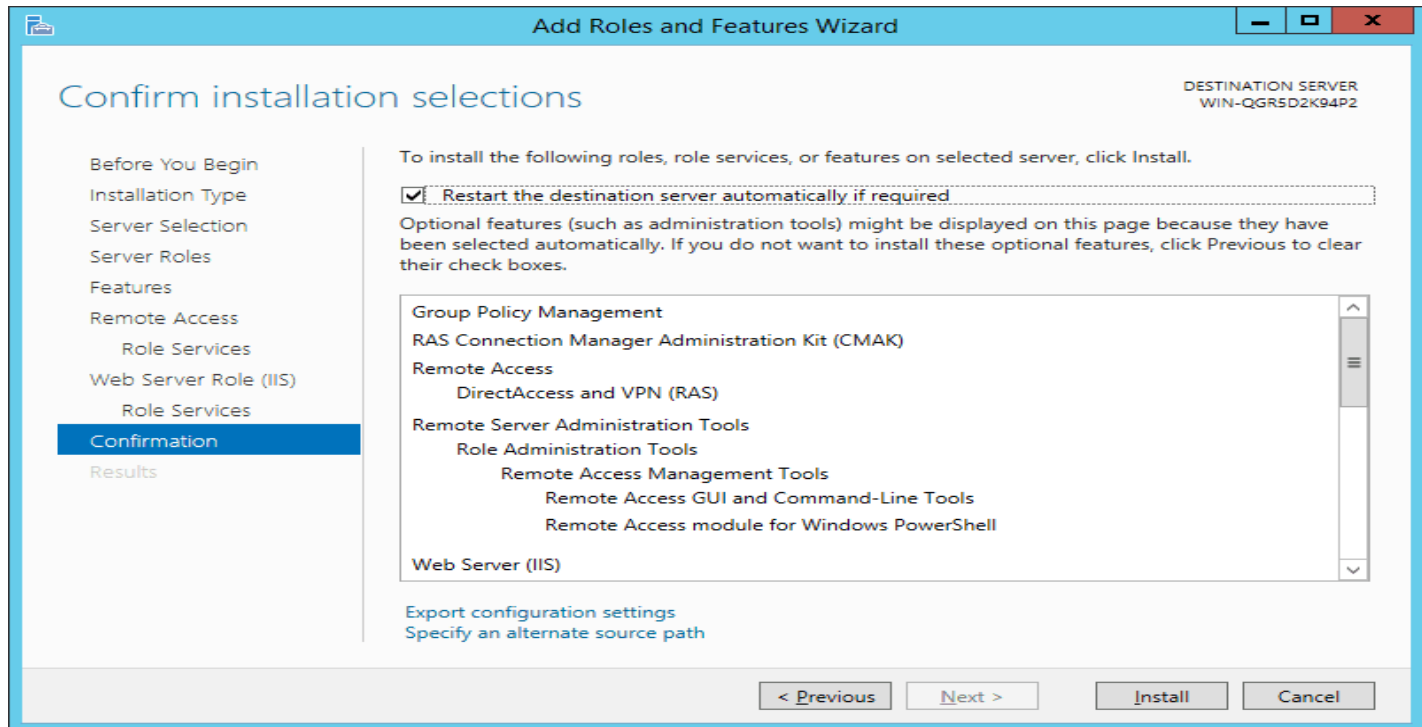
First install the “Remote Access” via Server Manager or Windows PowerShell.



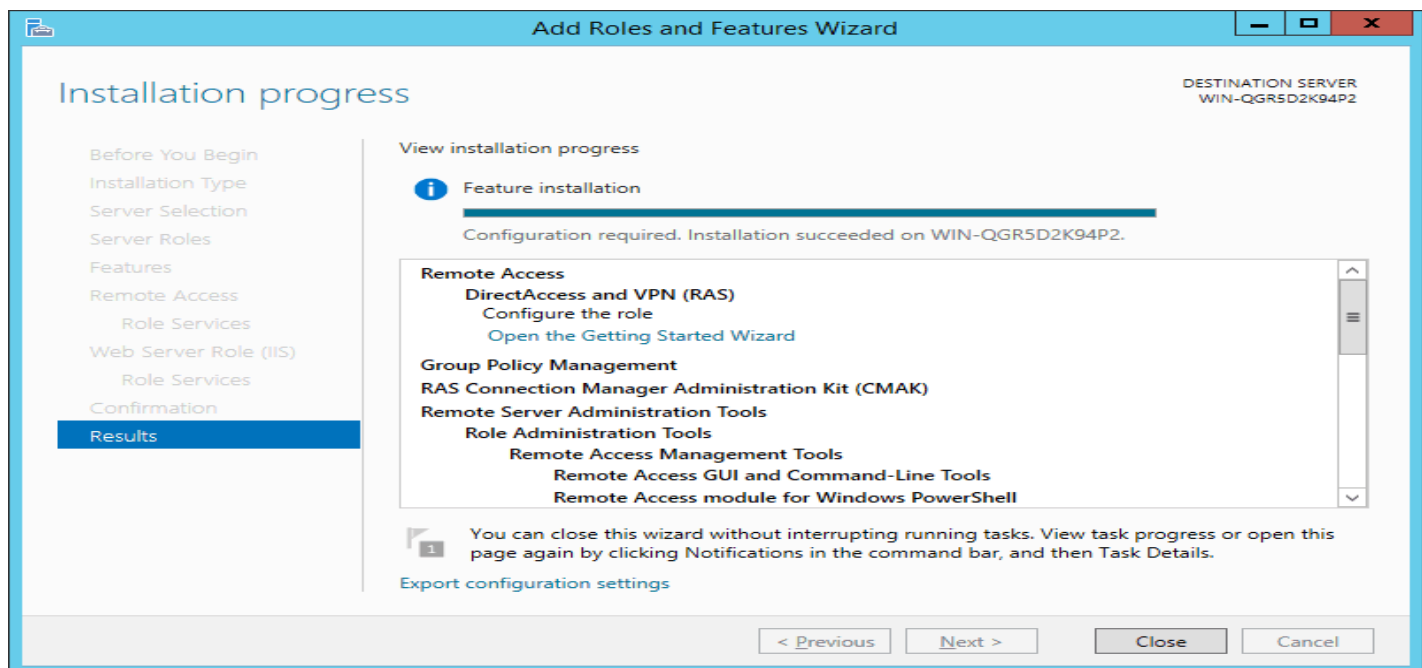
Select the “Direct Access and VPN (RAS)” role services.



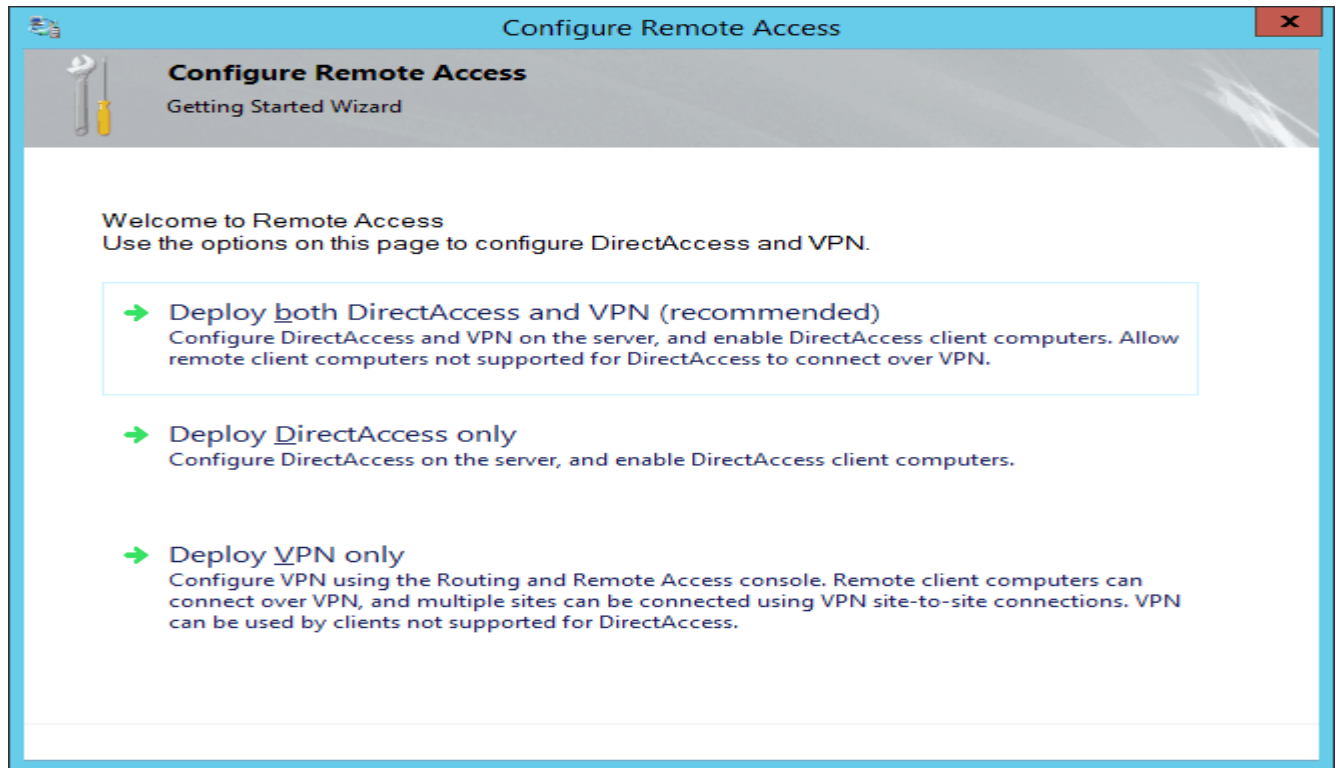
On the next steps just use the default settings. After that you can have a look at the Overview screen and install the role.



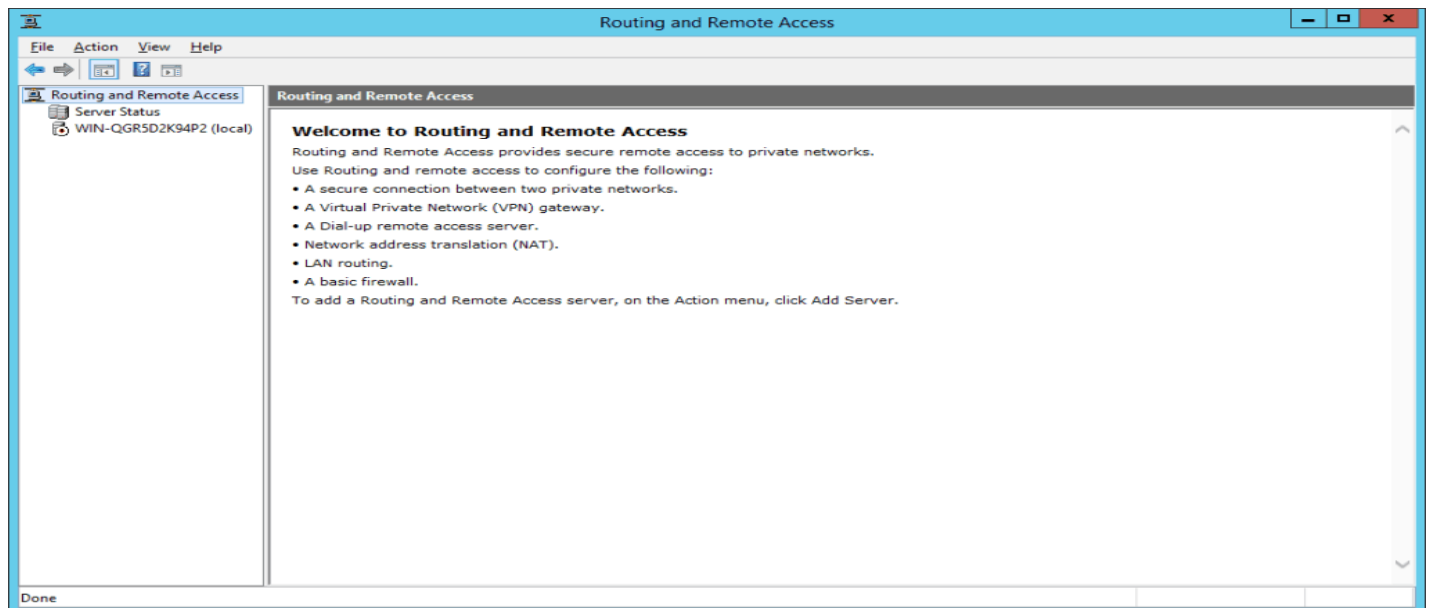
After the features are installed, which can take a while to finish you see the link for the Getting Started Wizard. Click on “Open the Getting Started Wizard”.



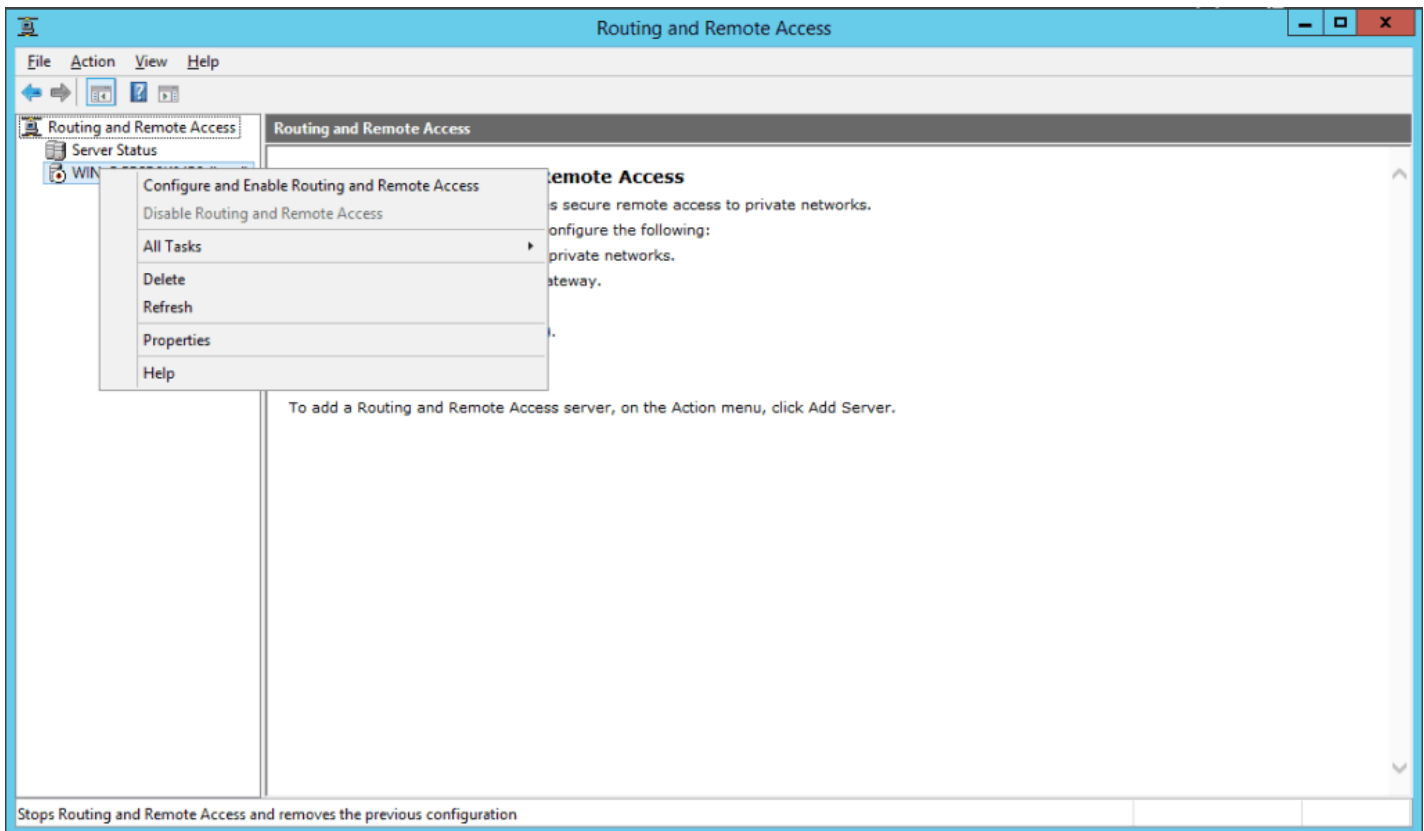
This opens a new wizard which will help you to configure the server. On the first screen select “Deploy VPN only”.



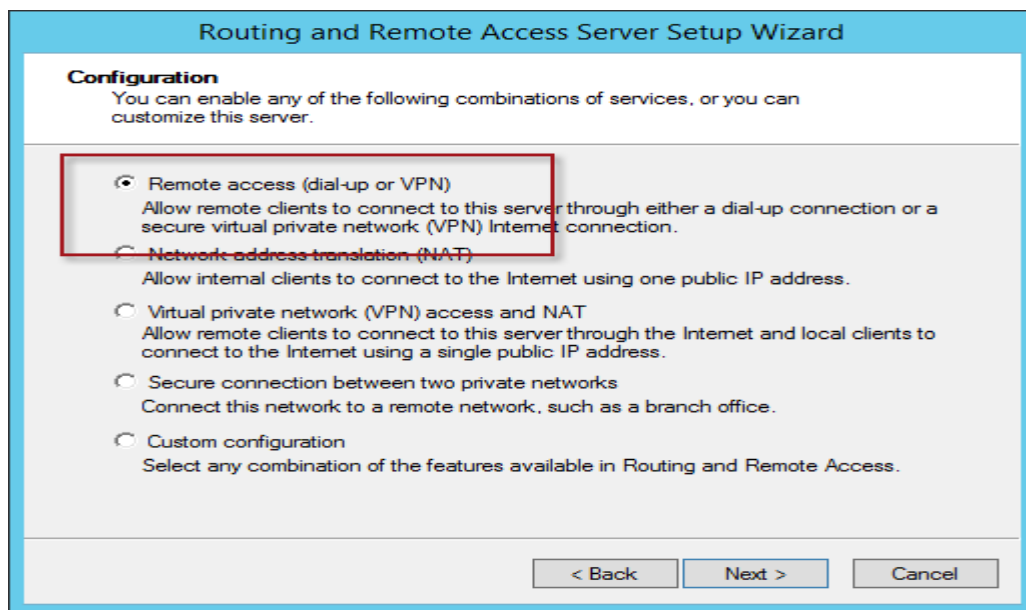
This opens the Routing and Remote Access MMC



Right click on the Server name and click on “Configure and Enable Routing and Remote Access”.

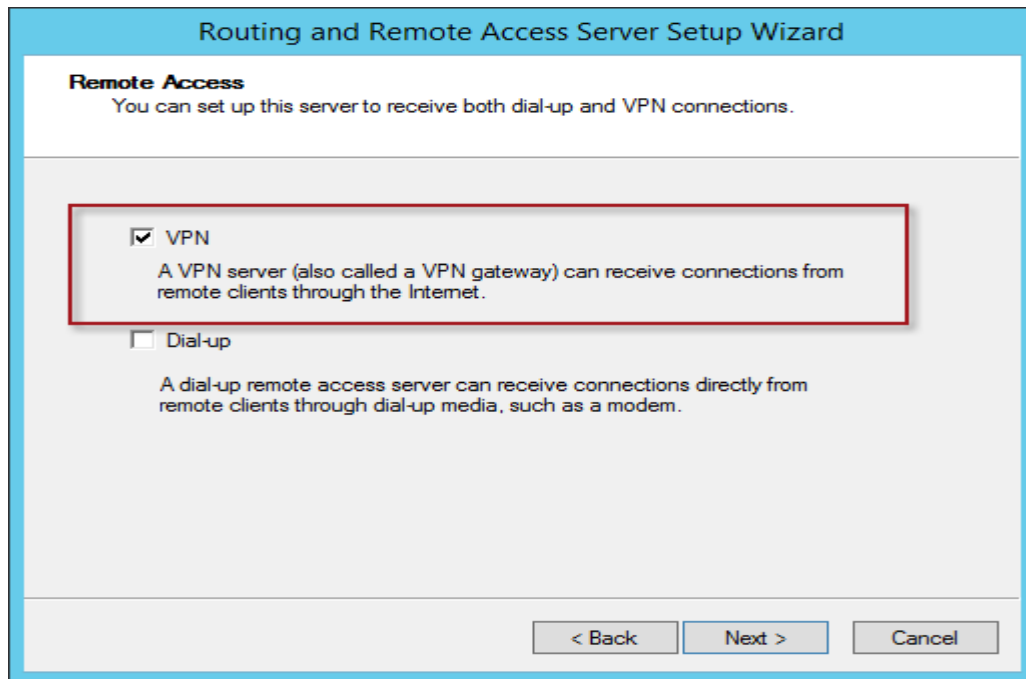


Click Next, choose the Remote access (dial-up or VPN) option, and click Next.



Choose Remote access (dial-up or VPN).

Choose VPN and click Next.



The screenshot shows the 'Remote Access' step of the 'Routing and Remote Access Server Setup Wizard'. The title bar reads 'Routing and Remote Access Server Setup Wizard'. Below the title, the section is 'Remote Access' with the instruction: 'You can set up this server to receive both dial-up and VPN connections.' There are two options: 'VPN' (checked) and 'Dial-up' (unchecked). The 'VPN' option is highlighted with a red rectangle. Below each option is a descriptive sentence. At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

Remote Access
You can set up this server to receive both dial-up and VPN connections.

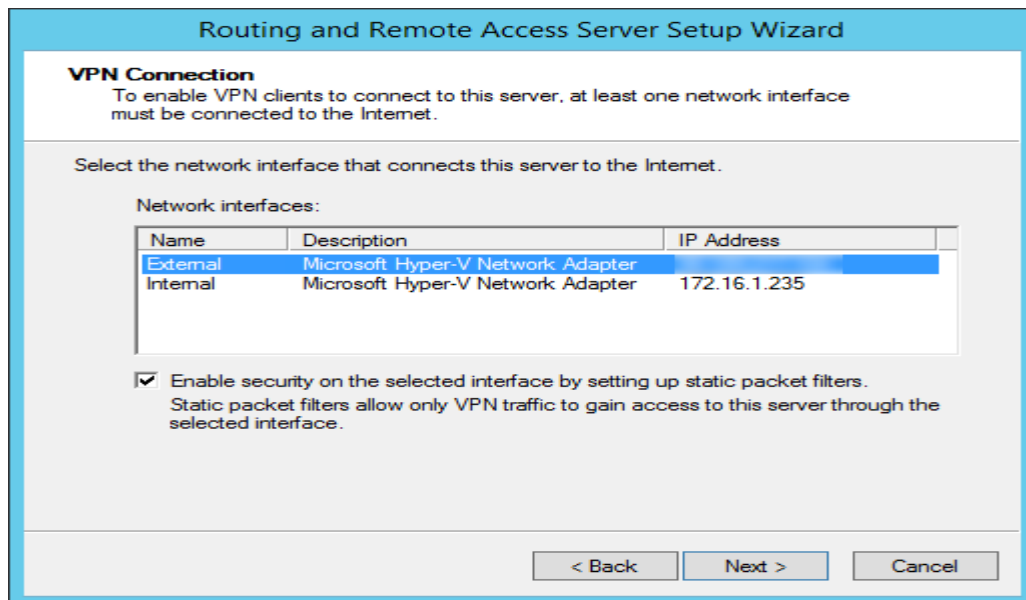
☒ **VPN**
A VPN server (also called a VPN gateway) can receive connections from remote clients through the Internet.

☐ **Dial-up**
A dial-up remote access server can receive connections directly from remote clients through dial-up media, such as a modem.

< Back Next > Cancel

Choose VPN.

Select the network interface that is Internet-facing. In addition, select the option to Enable security on the selected interface by setting up static packet filters and click Next.



The screenshot shows the 'VPN Connection' step of the 'Routing and Remote Access Server Setup Wizard'. The title bar reads 'Routing and Remote Access Server Setup Wizard'. Below the title, the section is 'VPN Connection' with the instruction: 'To enable VPN clients to connect to this server, at least one network interface must be connected to the Internet.' The instruction 'Select the network interface that connects this server to the Internet.' is followed by a table of network interfaces. The 'External' interface is selected. Below the table, there is a checkbox 'Enable security on the selected interface by setting up static packet filters.' which is checked. At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

VPN Connection
To enable VPN clients to connect to this server, at least one network interface must be connected to the Internet.

Select the network interface that connects this server to the Internet.

Network interfaces:

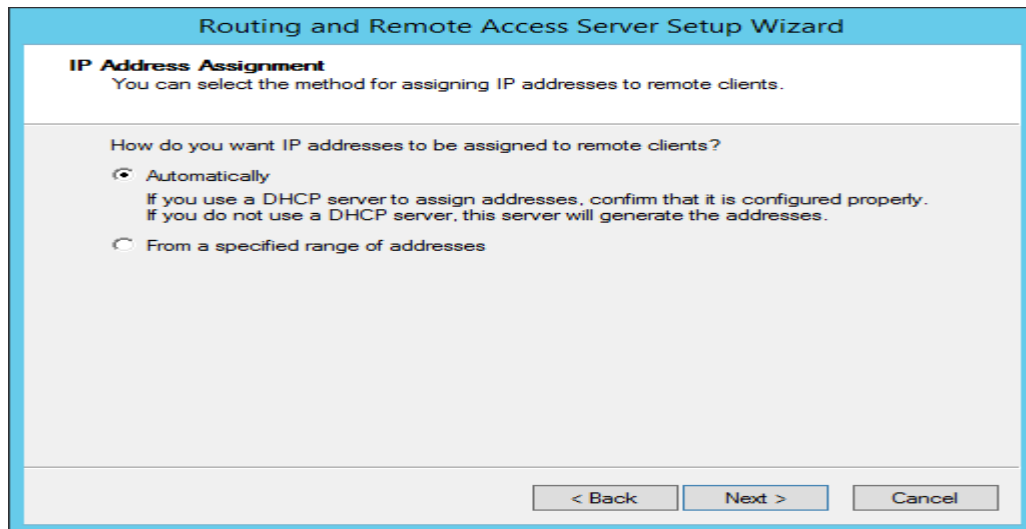
Name	Description	IP Address
External	Microsoft Hyper-V Network Adapter	
Internal	Microsoft Hyper-V Network Adapter	172.16.1.235

☒ **Enable security on the selected interface by setting up static packet filters.**
Static packet filters allow only VPN traffic to gain access to this server through the selected interface.

< Back Next > Cancel

Select the Internet-facing network interface.

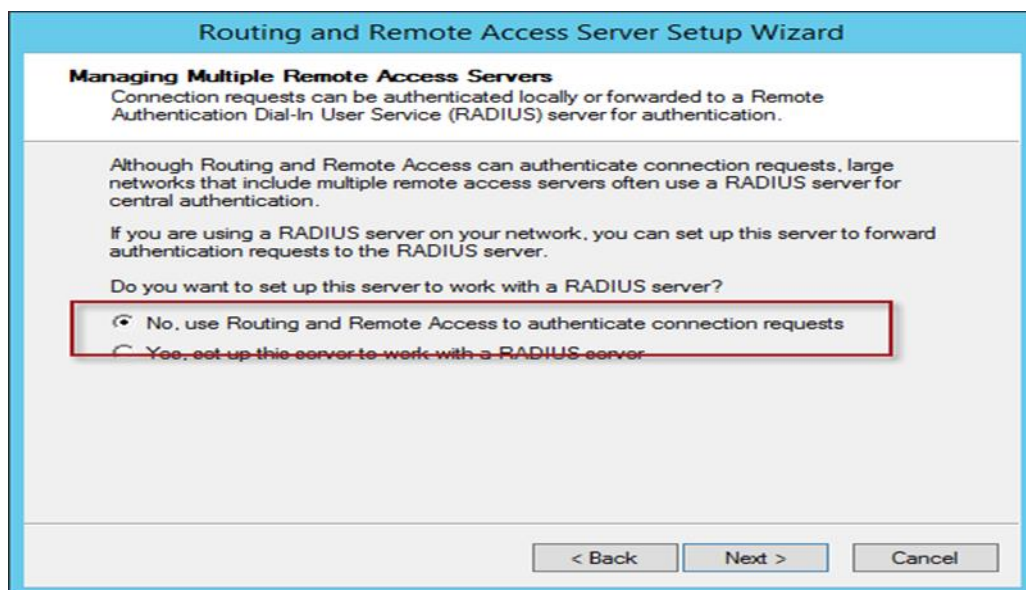
DHCP. Select the option to assign IP addresses automatically and click Next.



Choose automatic IP address assignment for remote clients.

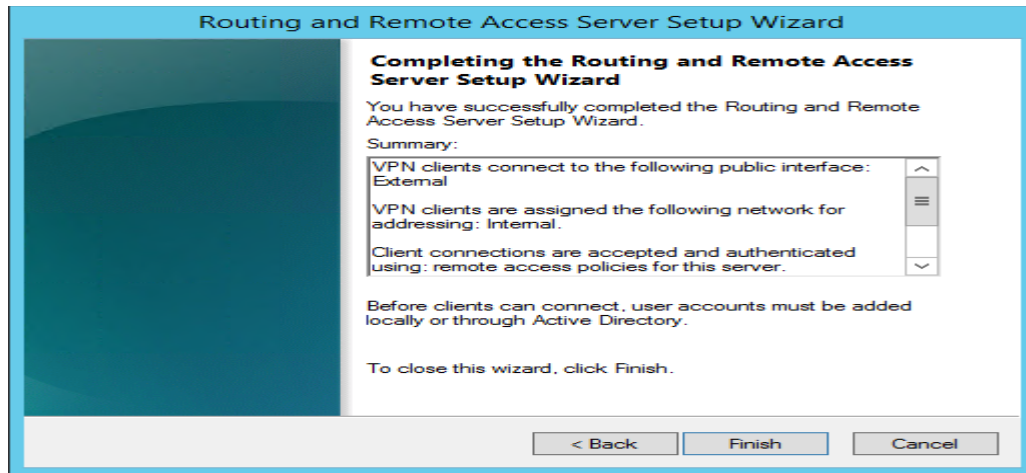
Note:

If the VPN server is to be deployed in a load-balanced cluster, IP addresses must be assigned to clients manually. The VPN server can authenticate users itself, or forward authentication requests to an internal RADIUS server. For the scope of this article, native Windows authentication using RRAS will be configured. Choose No, use Routing and Remote Access to authenticate connection requests and click Next



Use Routing and Remote Access to authenticate connection requests.

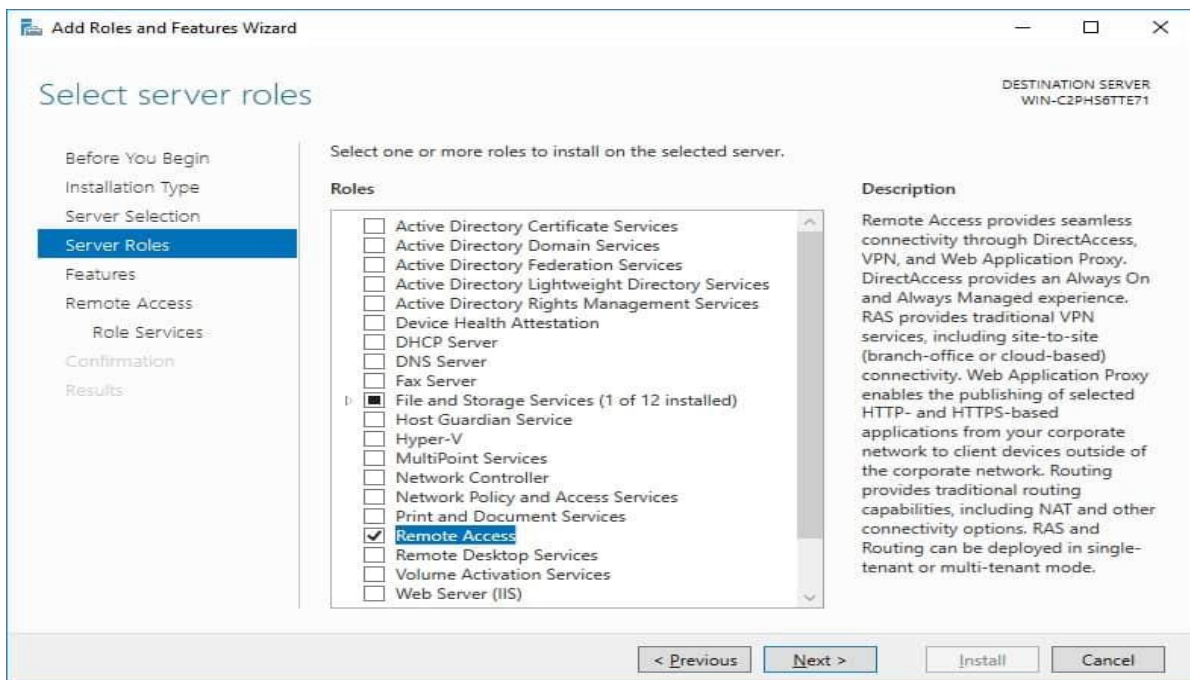
Review the configuration and click Finish.



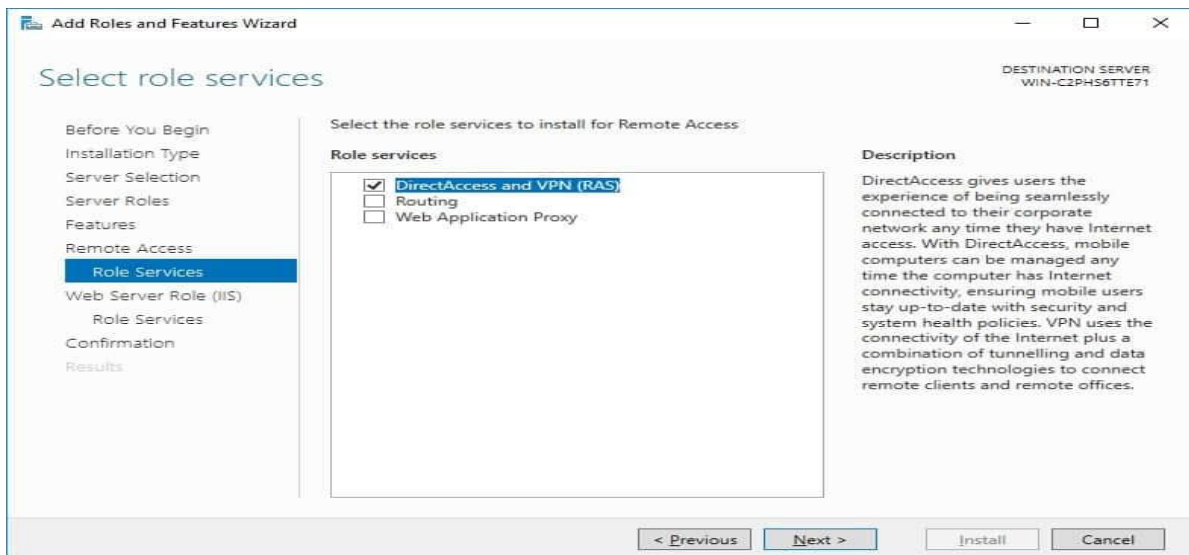
14.2- VPN in windows server 2016

تفعيل VPN داخل windows server 2016

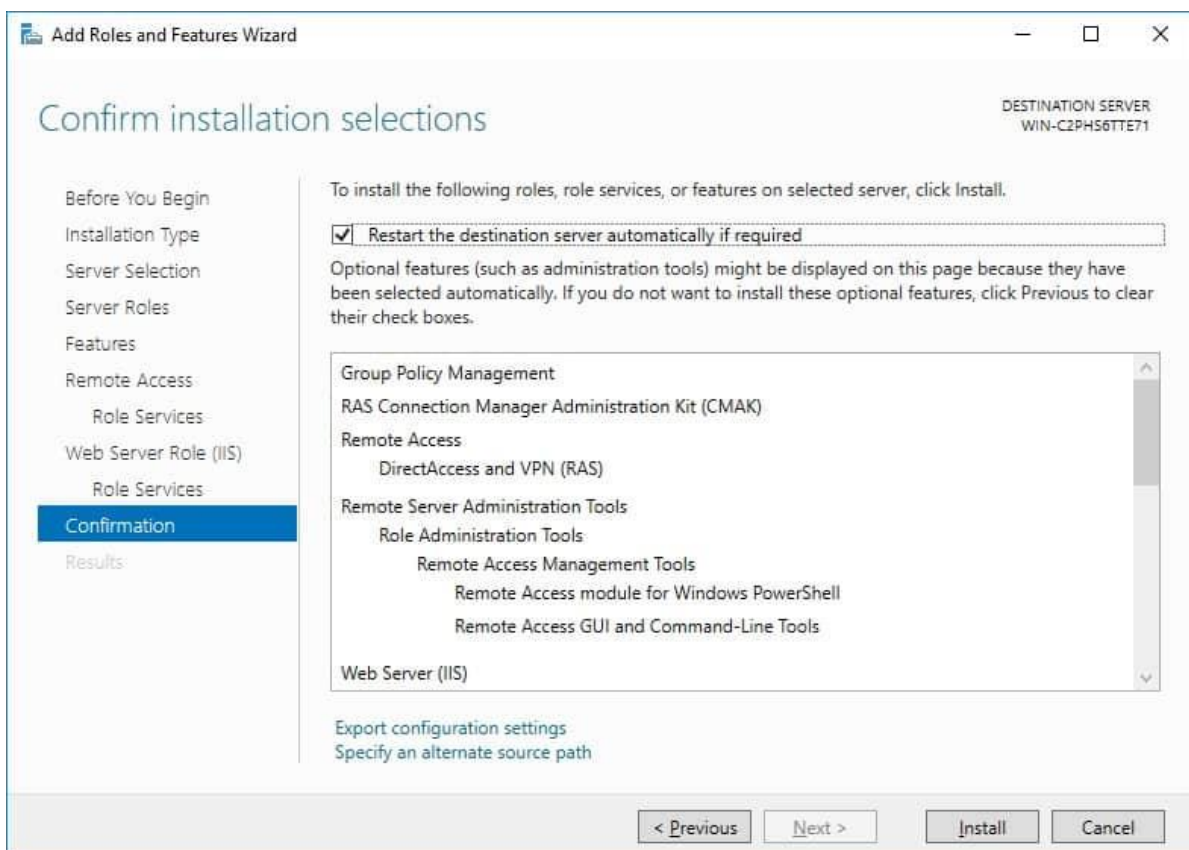
First install the “Remote Access” via Server Manager or Windows PowerShell.



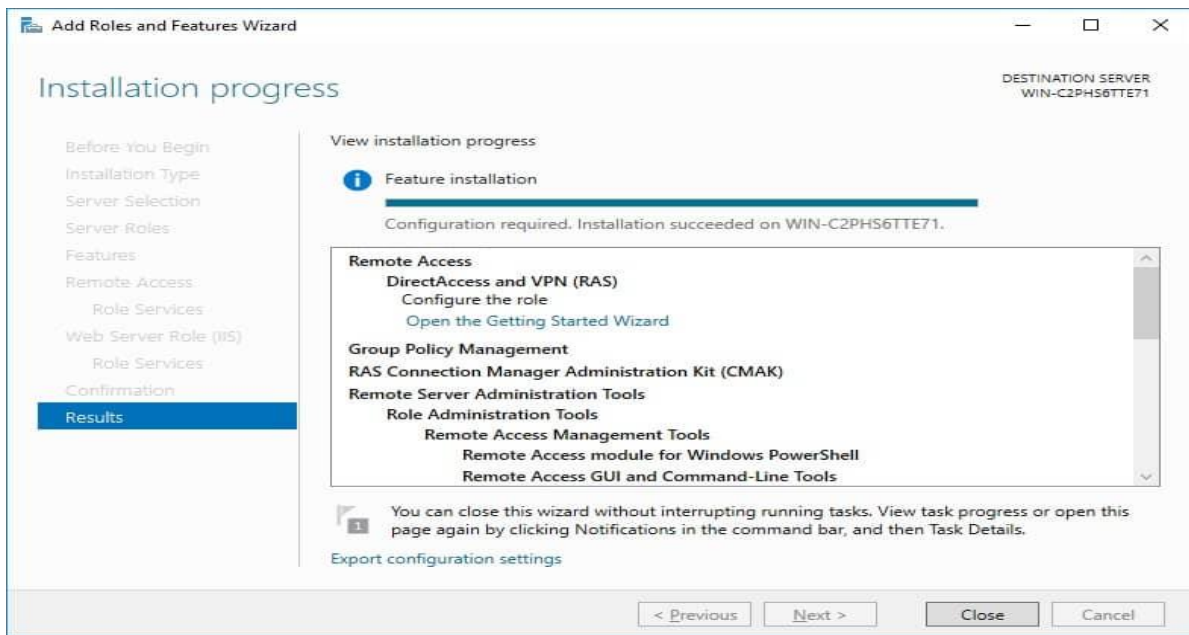
Select the “DirectAccess and VPN (RAS)” role services and click next.



On the next steps just use the default settings. After that you can have a look at the overview screen and install the role.

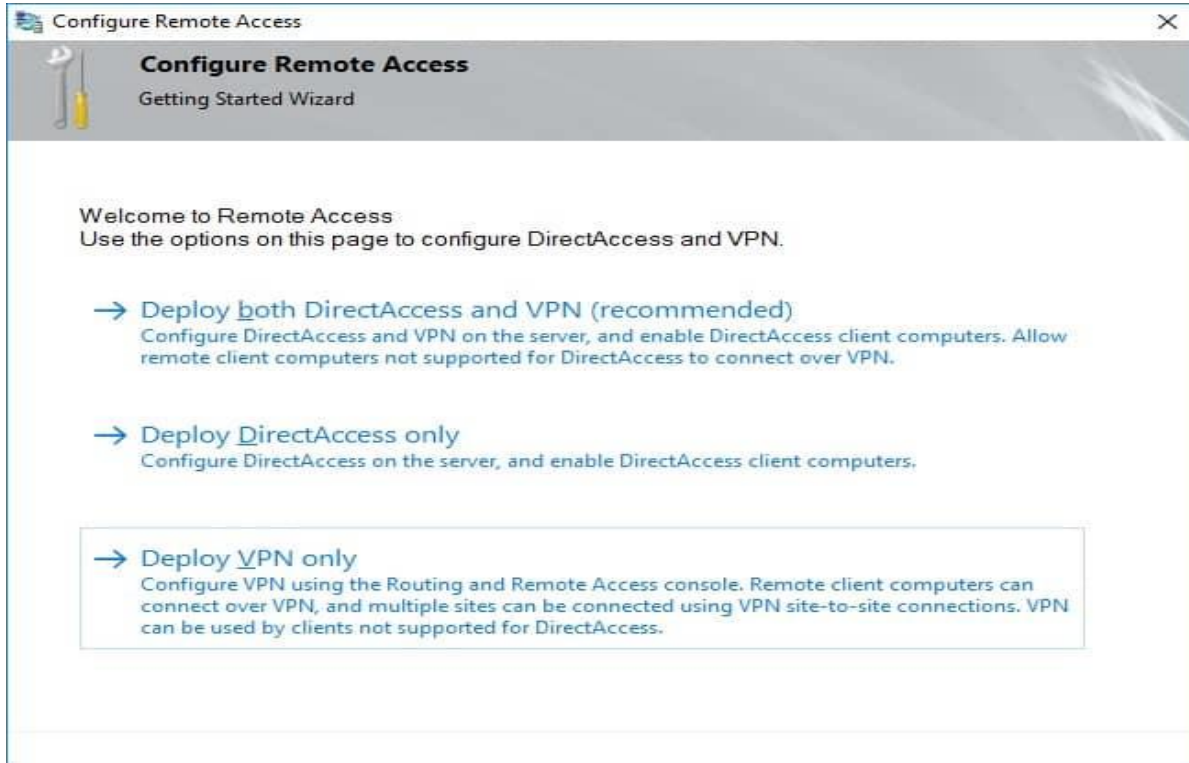


After the features are installed, which can take a while to finish you see the link for the Getting Started Wizard. Click on “Open the Getting Started Wizard”.

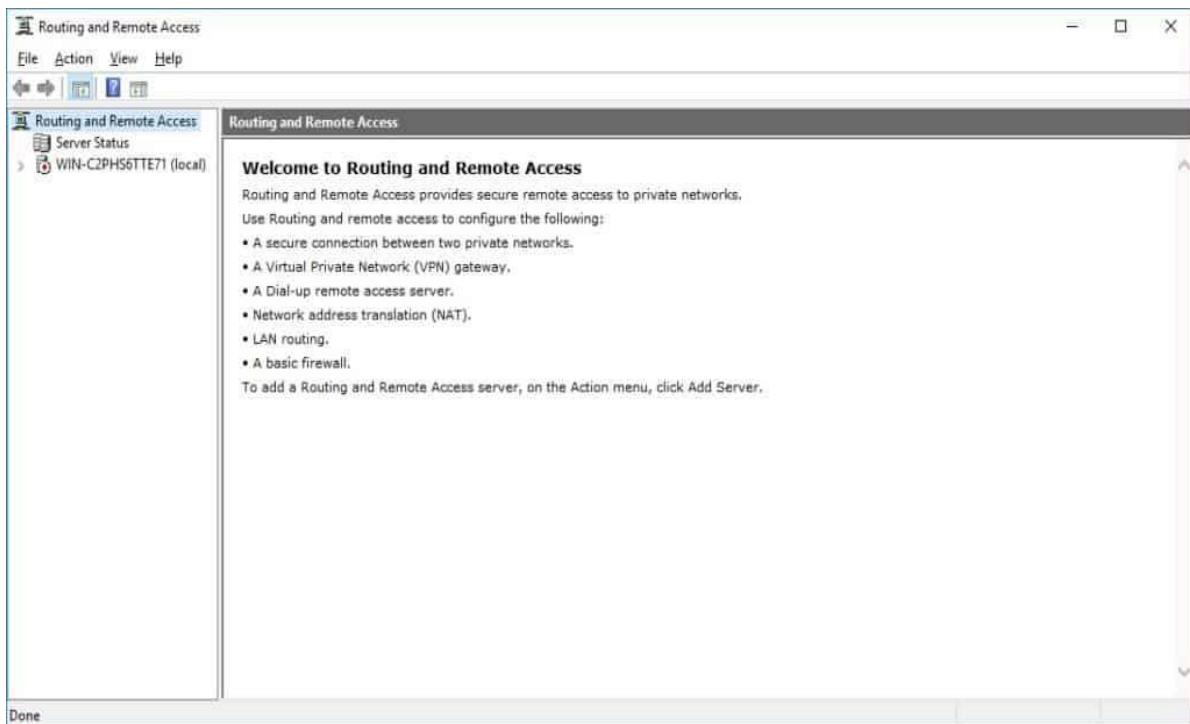


Configure Windows Server VPN

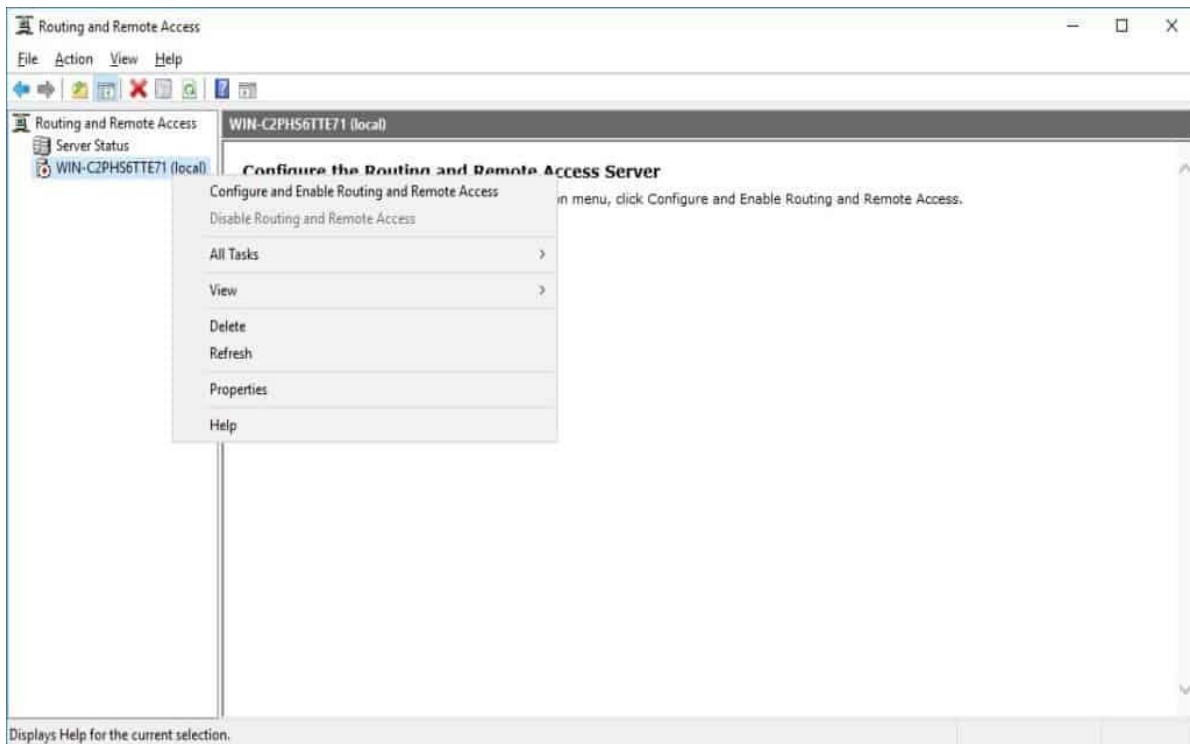
This opens a new wizard which will help you to configure the server. On the first screen select “Deploy VPN only“.



This opens the Routing and Remote Access Management Console



Right click on the Server name and click on **“Configure and Enable Routing and Remote Access”**.



On the new wizard select **“Custom configuration”**.

Routing and Remote Access Server Setup Wizard

Configuration
You can enable any of the following combinations of services, or you can customize this server.

☐ Remote access (dial-up or VPN)
Allow remote clients to connect to this server through either a dial-up connection or a secure virtual private network (VPN) Internet connection.

☐ Network address translation (NAT)
Allow internal clients to connect to the Internet using one public IP address.

☐ Virtual private network (VPN) access and NAT
Allow remote clients to connect to this server through the Internet and local clients to connect to the Internet using a single public IP address.

☐ Secure connection between two private networks
Connect this network to a remote network, such as a branch office.

☒ Custom configuration
Select any combination of the features available in Routing and Remote Access.

Select “VPN Access“.

Routing and Remote Access Server Setup Wizard

Custom Configuration
When this wizard closes, you can configure the selected services in the Routing and Remote Access console.

Select the services that you want to enable on this server.

☒ VPN access

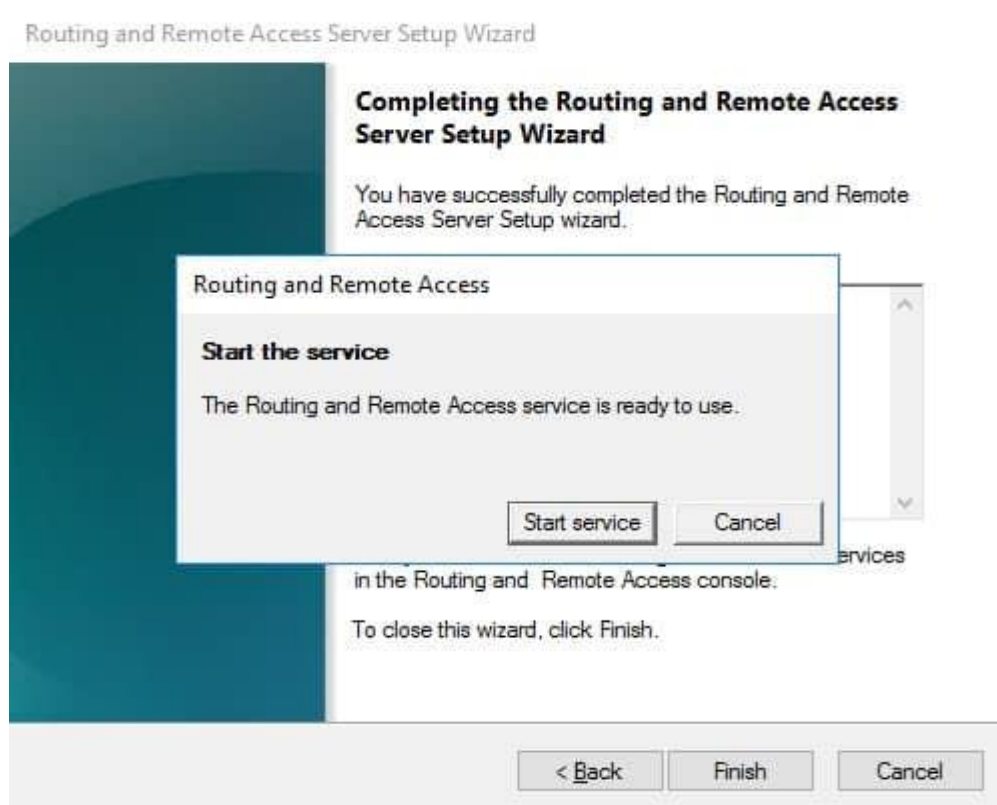
☐ Dial-up access

☐ Demand-dial connections (used for branch office routing)

☐ NAT

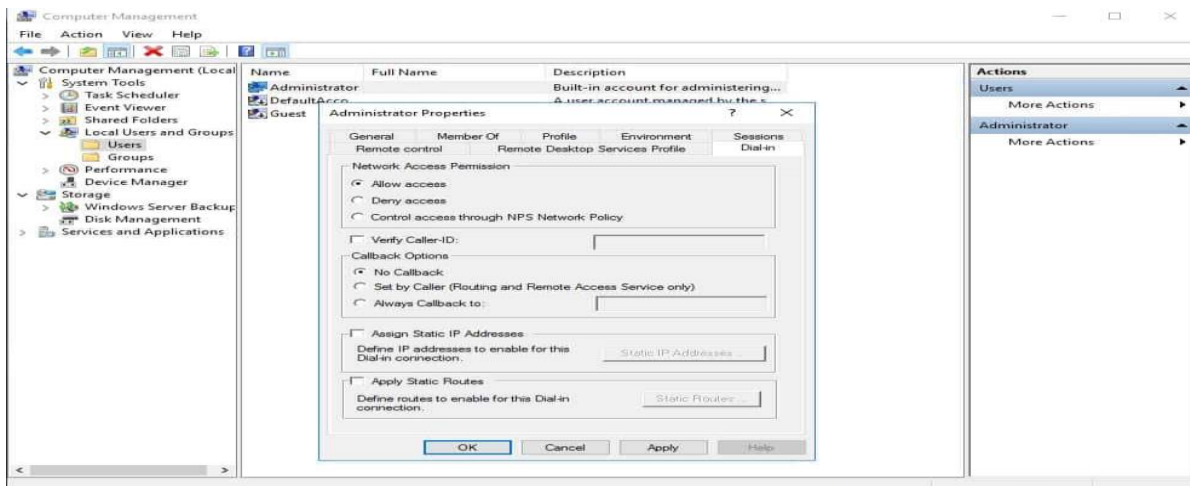
☐ LAN routing

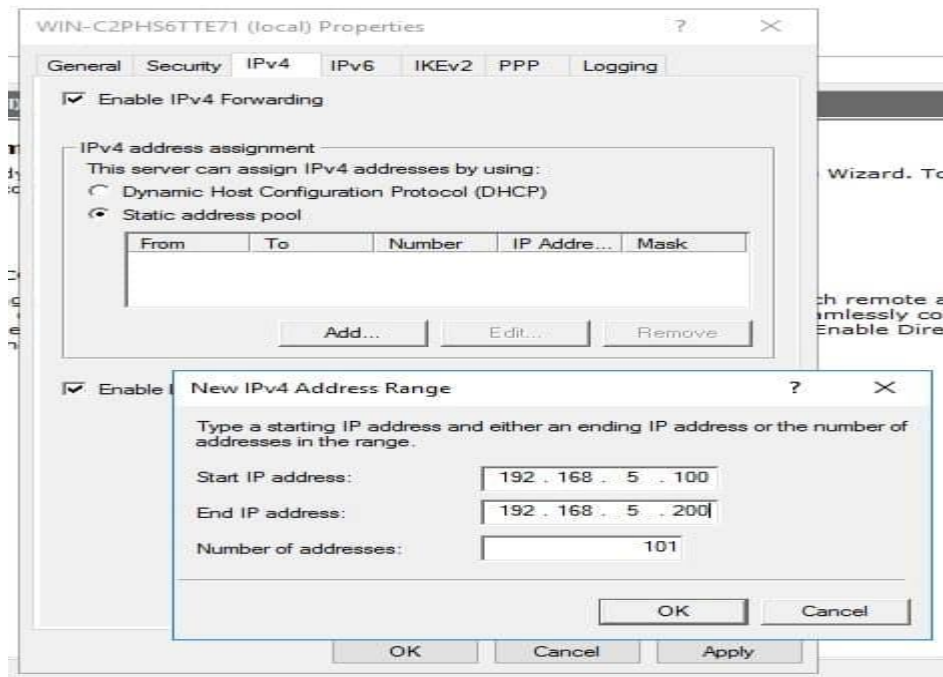
After you have click finish you can now start the Routing and Remote Access service.



If you have an other firewall between the internet and your Windows Server you have to open the following Firewall port sand forward them to your Windows Server:

After the installation Users have to be enabled for Remote Access to connect to your VPN Server. On a standalone server this can be done in the Computer Management MMC, in a domain environment this can be done in the user properties of an Active Directory user.





You now have to add a IP address from the same subnet as your static address pool to the network interface of your server, so users can access the server.

I hope this helps you to setup a VPN server in a small environment, lab or hosted server

Select “VPN Access“.

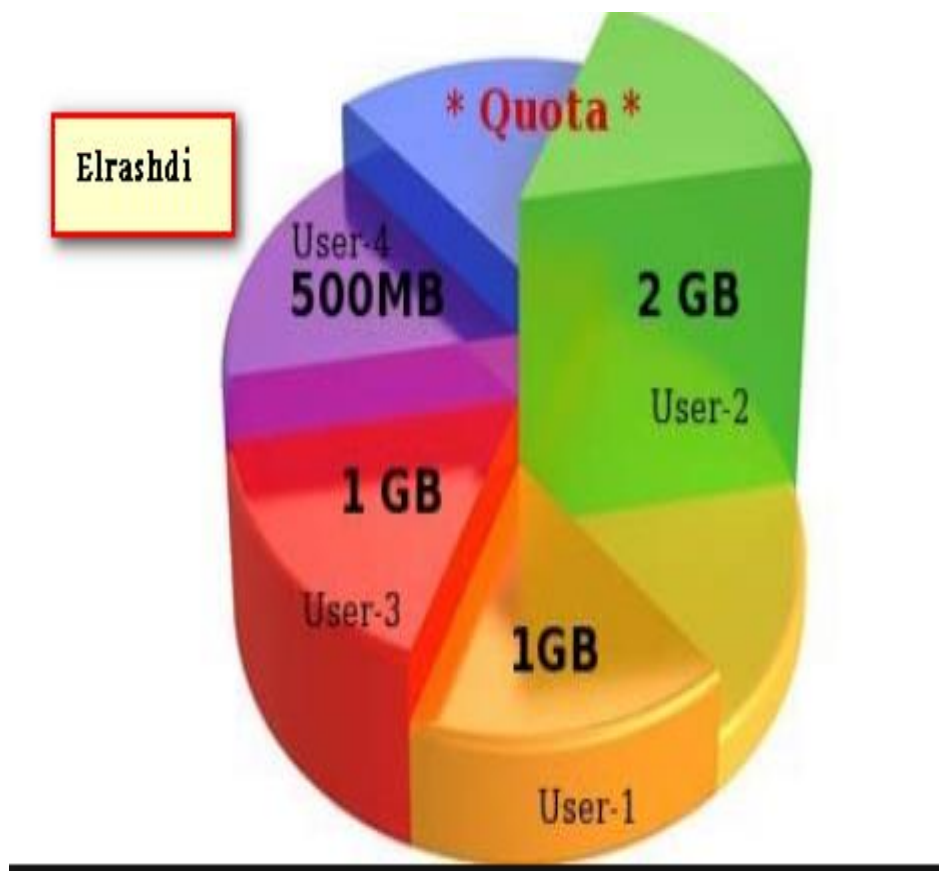
After you have click finish you can now start the Routing and Remote Access service.



15-quota in windows server

وهي عملية تحديد مساحة تخزينه محدد لكل مستخدم يوميا او اسبوعيا او شهرية وذلك للاستغلال الانسب للقرص الصلب الموجود داخل الخوادم المختلفة.

Quota management is a valuable feature that enables you to restrict the storage capacity of shared resources in Windows Server. If you create quotas, you will limit the space allocated for a volume or a folder—allowing you to practice capacity management conveniently.

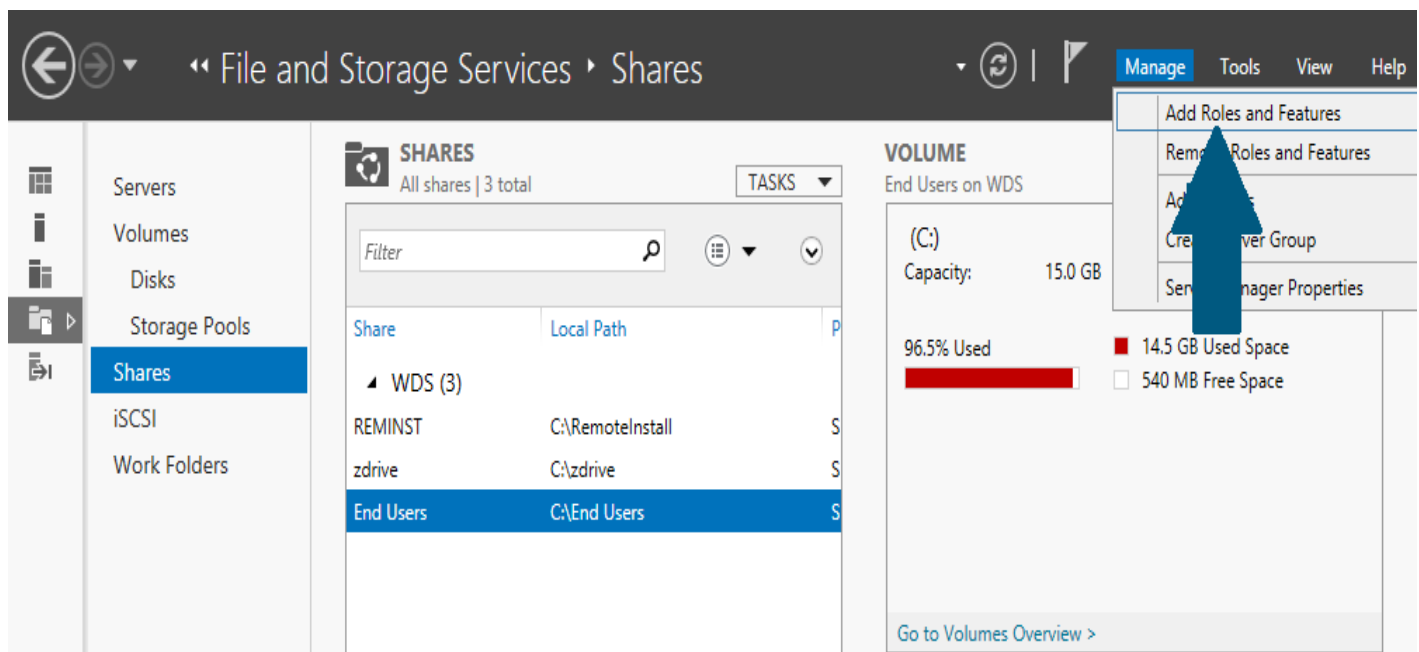


15.1- Quota in Windows Server 2012 R2

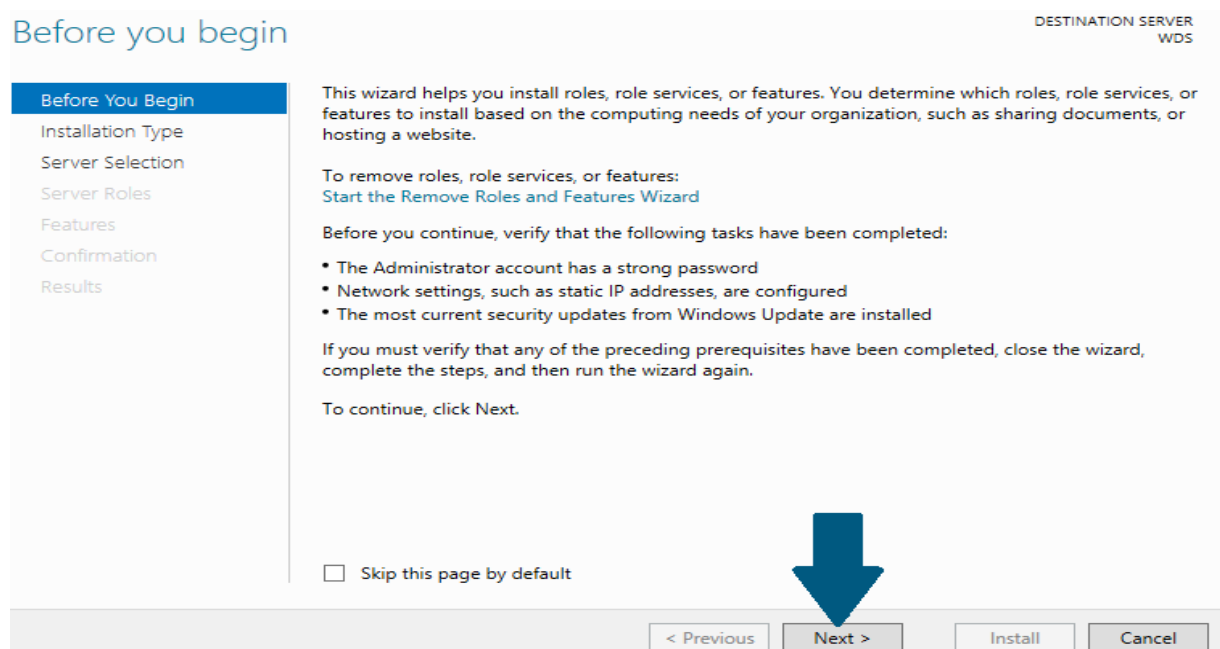
تفعيل تحديد مساحة تخزينه محددة داخل Windows Server 2012 R2

Configuring File Server Resource Manager

Open server manager dashboard, click **Manage** -> **Add Role and Features**.



Click Next.



Choose Role-based or feature-based installation and click Next.

Select installation type

DESTINATION SERVER
WDS

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD).

☒ **Role-based or feature-based installation**

Configure a single server by adding roles, role services, and features.

☐ **Remote Desktop Services installation**

Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.



< Previous

Next >

Install

Cancel

Click Next.

Select destination server

DESTINATION SERVER
WDS

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

Select a server or a virtual hard disk on which to install roles and features.

☒ **Select a server from the server pool**

☐ **Select a virtual hard disk**

Server Pool

Filter:

Name	IP Address	Operating System
WDS		Microsoft Windows Server 2012 R2 Standard

1 Computer(s) found

This page shows servers that are running Windows Server and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.



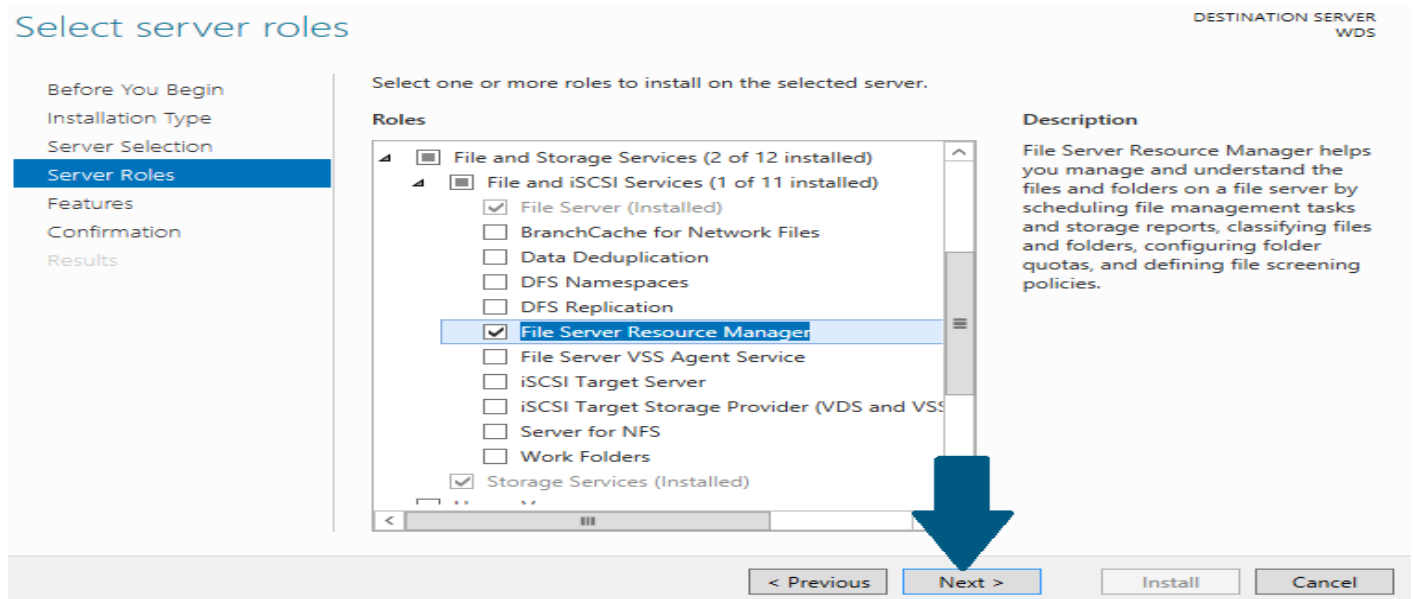
< Previous

Next >

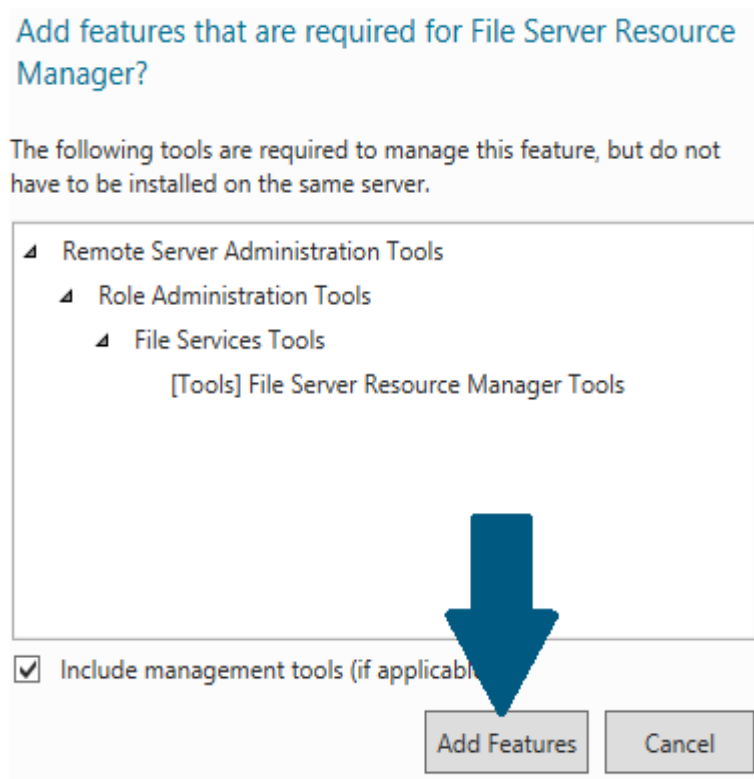
Install

Cancel

Expand File and Storage Services -> File and iSCSI Services -> File Server Resource Manager.
Click Next.



Click Add Features.



Choose .NET Framework and then Click Next.

Select features

DESTINATION SERVER
WDS

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

Select one or more features to install on the selected server.

Features

<input type="checkbox"/>	.NET Framework 3.5 Features
<input checked="" type="checkbox"/>	.NET Framework 4.5 Features (2 of 7 installed)
<input type="checkbox"/>	Background Intelligent Transfer Service (BITS)
<input type="checkbox"/>	BitLocker Drive Encryption
<input type="checkbox"/>	BitLocker Network Unlock
<input type="checkbox"/>	BranchCache
<input type="checkbox"/>	Client for NFS
<input type="checkbox"/>	Data Center Bridging
<input type="checkbox"/>	Direct Play
<input type="checkbox"/>	Enhanced Storage
<input type="checkbox"/>	Failover Clustering
<input type="checkbox"/>	Group Policy Management
<input type="checkbox"/>	IIS Hostable Web Core
<input type="checkbox"/>	Ink and Handwriting Services

Description

.NET Framework 3.5 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer appealing user interfaces, protect your customers' personal identity information, enable seamless and secure communication, and provide the ability to model a range of business processes.

< Previous

Next >

Install

Cancel

Click **Install**.

Confirm installation selections

DESTINATION SERVER
WDS

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

To install the following roles, role services, or features on selected server, click Install.

☐ Restart the destination server automatically if required

Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.

File and Storage Services
File and iSCSI Services
File Server Resource Manager

Remote Server Administration Tools
Role Administration Tools
File Services Tools
File Server Resource Manager Tools

[Export configuration settings](#)
[Specify an alternate source path](#)

< Previous

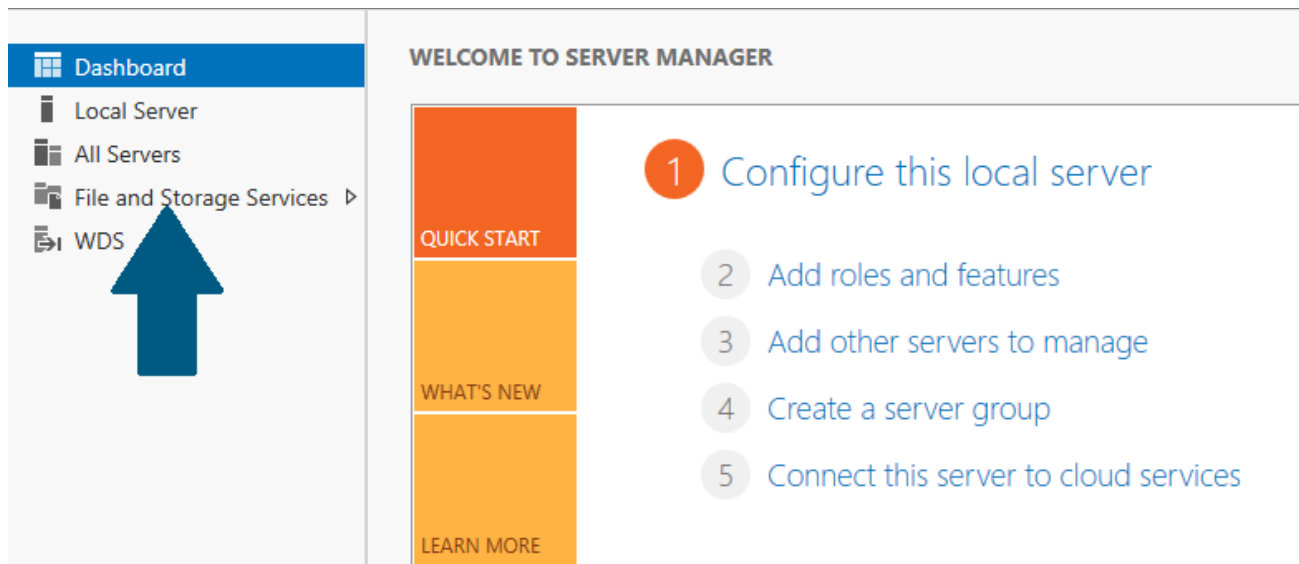
Next >

Install

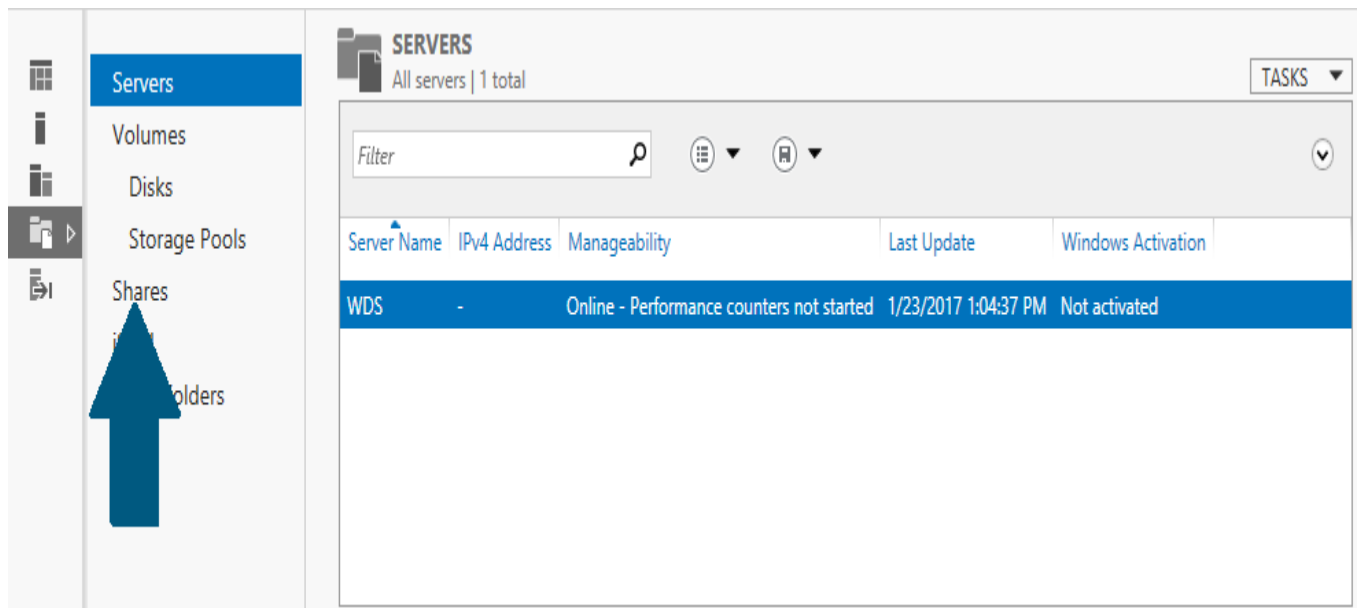
Cancel

Sharing a Folder using File and Storage Services

Open server manager dashboard, click **File and Storage Services**.

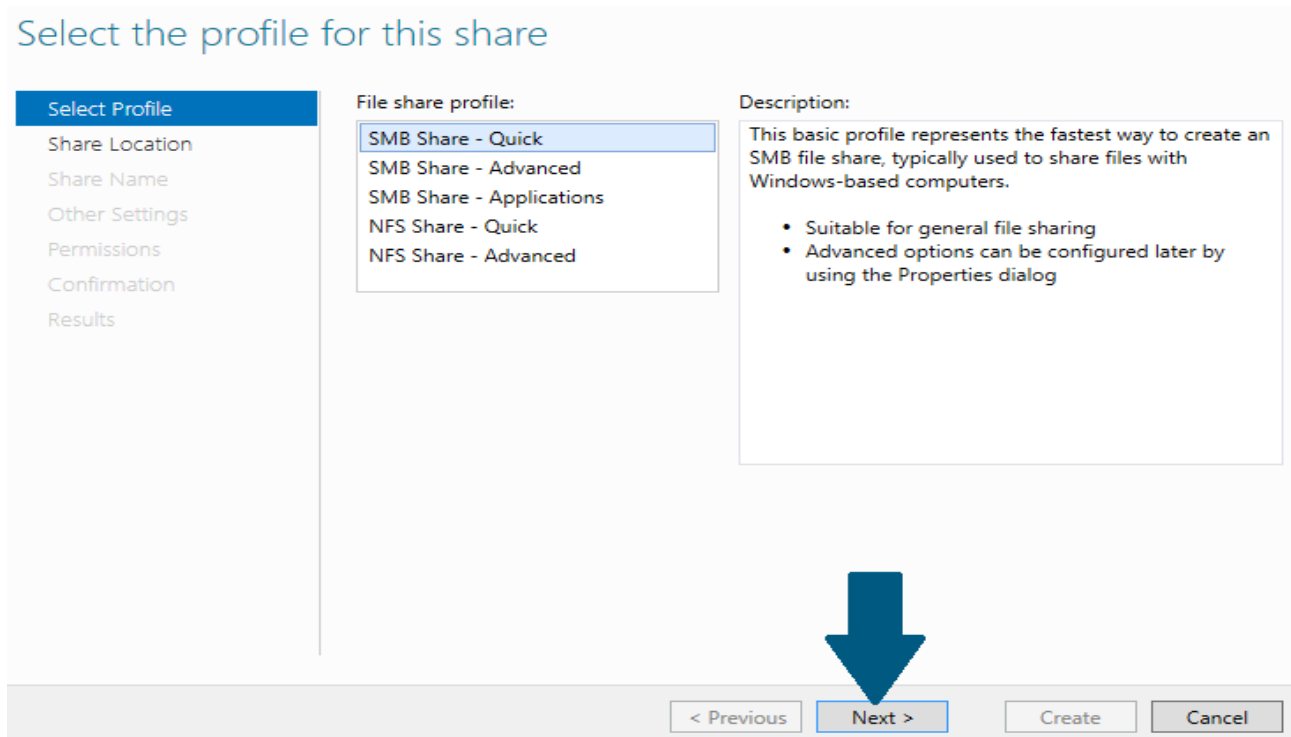


Click **Shares**.



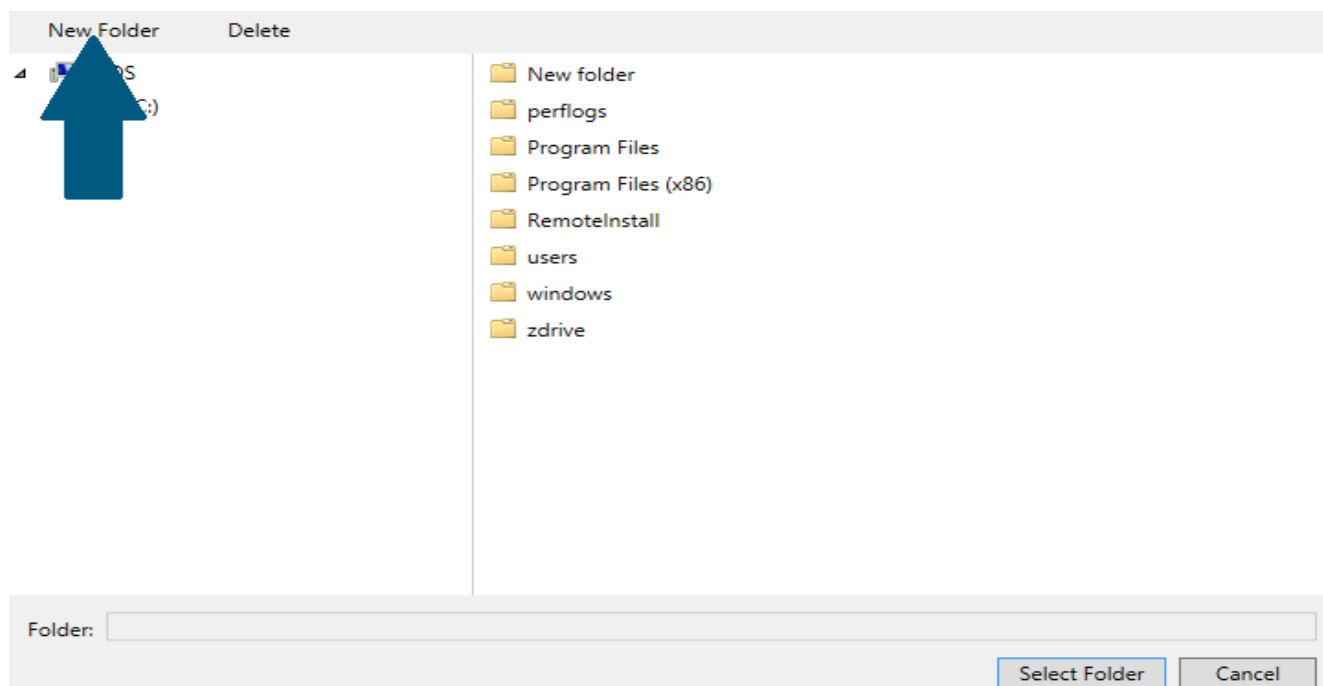
Click **Tasks** -> **New Share**.

Choose SMB Share - Quick. Click **Next**.

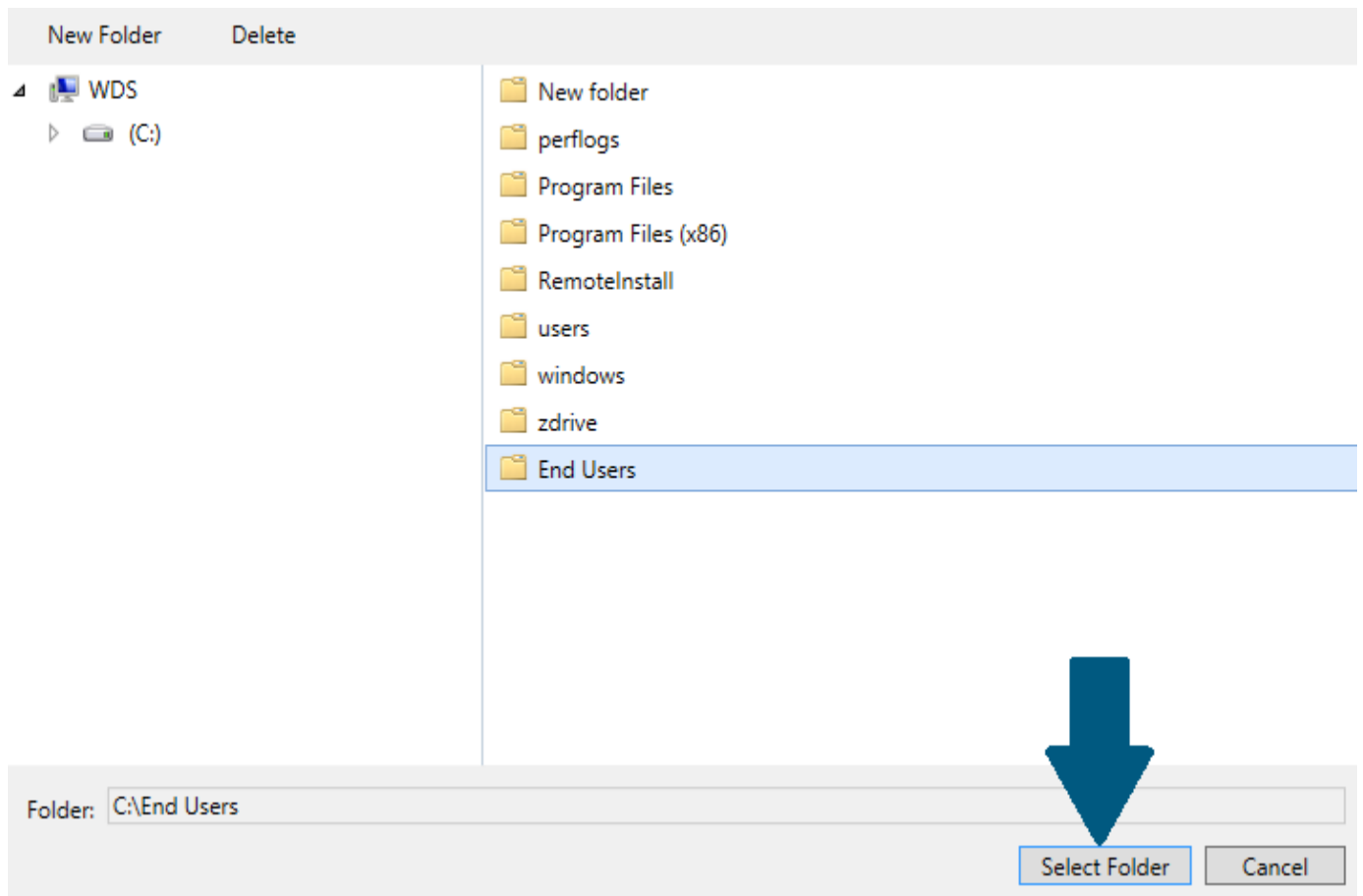


Click **Browse**.

Click **New Folder** and name it.

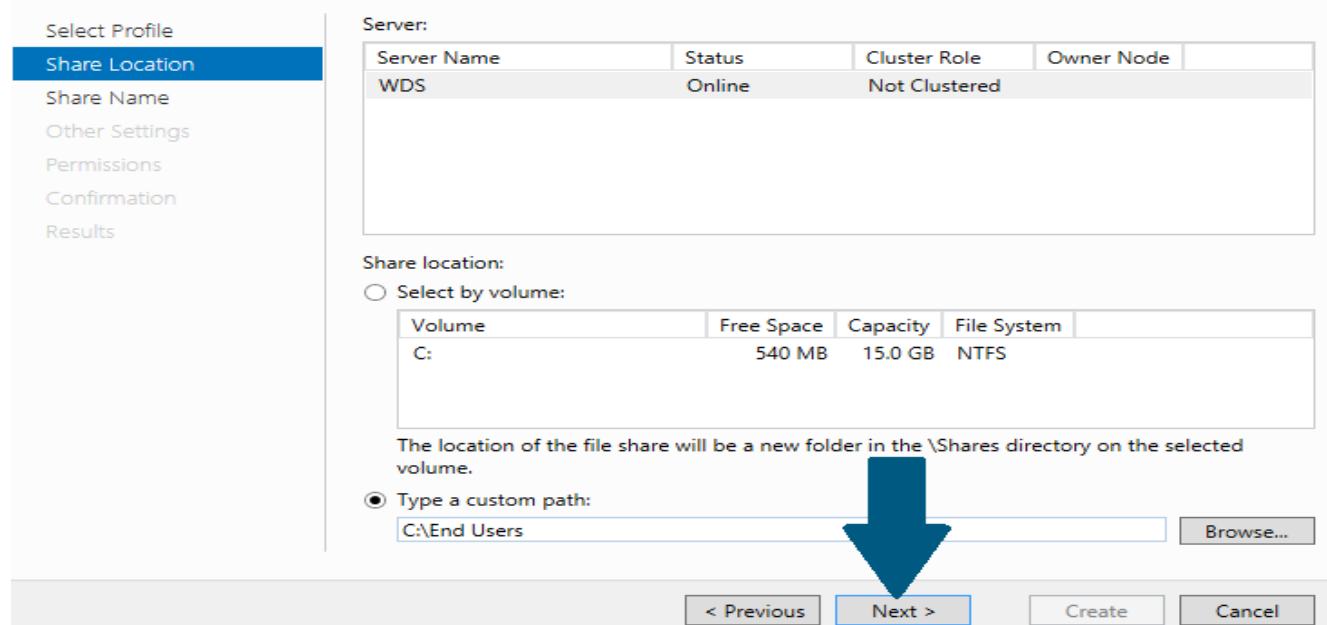


Choose the folder created in step 6 and click **Select Folder**.



Click **Next**.

Select the server and path for this share



Click **Next**.

Specify share name

Select Profile

Share Location

Share Name

Other Settings

Permissions

Confirmation

Results

Share name:

Share description:

Local path to share:


Remote path to share:

< Previous

Next >

Create

Cancel



Check **Enable access-based enumeration** and click **Next**.

Configure share settings

Select Profile

Share Location

Share Name

Other Settings

Permissions

Confirmation

Results

☒ **Enable access-based enumeration**
Access-based enumeration displays only the files and folders that a user has permissions to access. If a user does not have Read (or equivalent) permissions for a folder, Windows hides the folder from the user's view.

☐ **Allow caching of share**
Caching makes the contents of the share available to offline users. If the BranchCache for Network Files role service is installed, you can enable BranchCache on the share.

☐ **Enable BranchCache on the file share**
BranchCache enables computers in a branch office to cache files downloaded from this share, and then allows the files to be securely available to other computers in the branch.

☐ **Encrypt data access**
When enabled, remote file access to this share will be encrypted. This secures the data against unauthorized access while the data is transferred to and from the share. If this box is checked and grayed out, an administrator has turned on encryption for the entire server.

< Previous

Next >

Create

Cancel

Click **Next**.

Specify permissions to control access

Select Profile
Share Location
Share Name
Other Settings
Permissions
Confirmation
Results


Permissions to access the files on a share are set using a combination of folder permissions, share permissions, and, optionally, a central access policy.

Share permissions: Everyone Read Only

Folder permissions:

Type	Principal	Access	Applies To
Allow	CREATOR OWNER	Full Control	Subfolders and files only
Allow	BUILTIN\Users	Special	This folder and subfolders
Allow	BUILTIN\Users	Read & execute	This folder, subfolders, and files
Allow	BUILTIN\Administrators	Full Control	This folder, subfolders, and files
Allow	NT AUTHORITY\SYSTEM	Full Control	This folder, subfolders, and files

[Customize permissions...](#)



< Previous **Next >** Create Cancel

Click **Create**.

Confirm selections

Select Profile
Share Location
Share Name
Other Settings
Permissions
Confirmation
Results


Confirm that the following are the correct settings, and then click Create.

SHARE LOCATION

Server: WDS
Cluster role: Not Clustered
Local path: C:\End Users

SHARE PROPERTIES

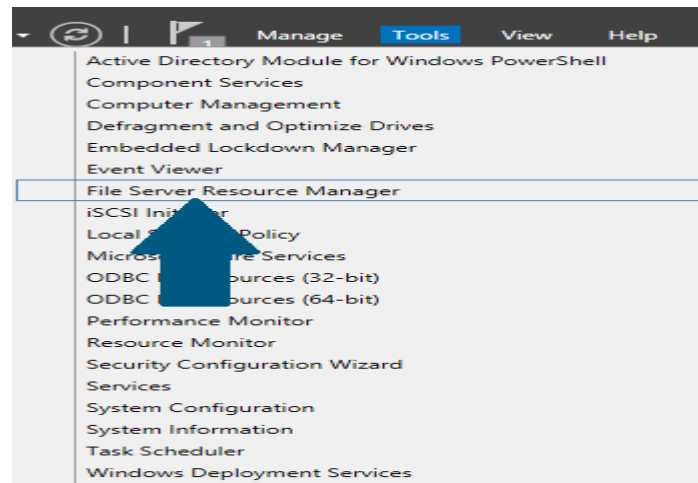
Share name: End Users
Protocol: SMB
Access-based enumeration: Enabled
Caching: Disabled
BranchCache: Disabled
Encrypt data: Disabled



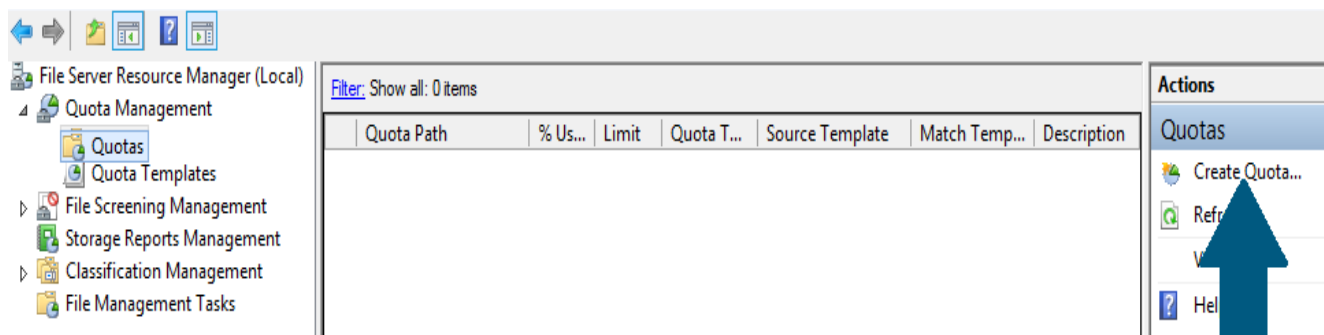
< Previous Next > **Create** Cancel

Enabling Quota on Shared Folder

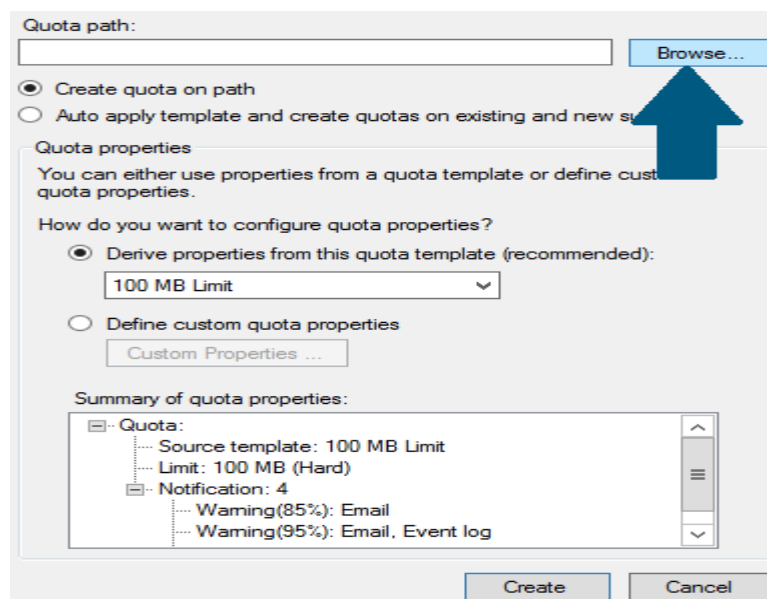
: Open server manager dashboard, click **Tools** -> **File Server Resource Manager**.



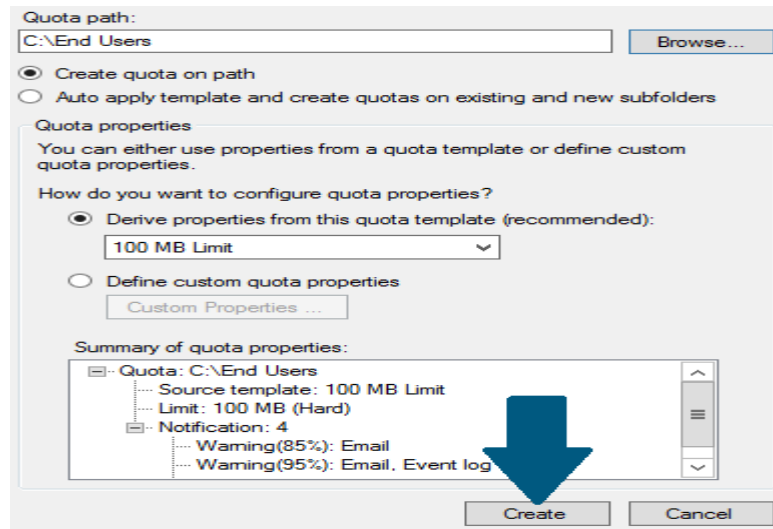
Expand File Server Resource Manager -> Quota Management. Click **Create Quota...**



Click **Browse** and provide the path of the shared folder.



Choose Drive properties from this quota template (recommended); and choose the template from the drop down. Click **Create**.

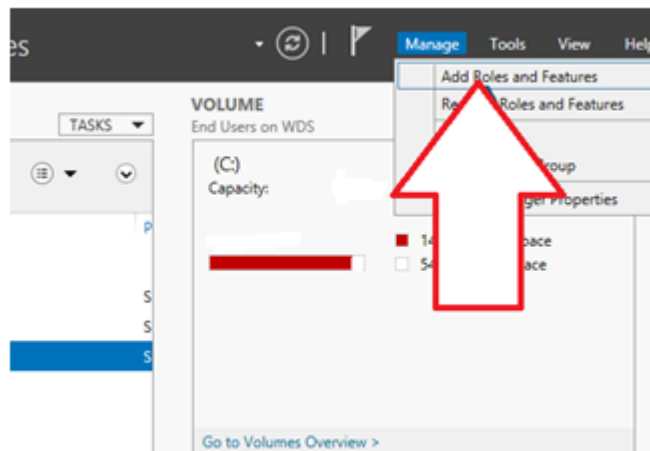


Conclusion Quota management is a useful feature which allows you to set a storage limit on a shared folder. When you finished this article, you might want to further explore a file screening provided by the File Server Resource Manager.

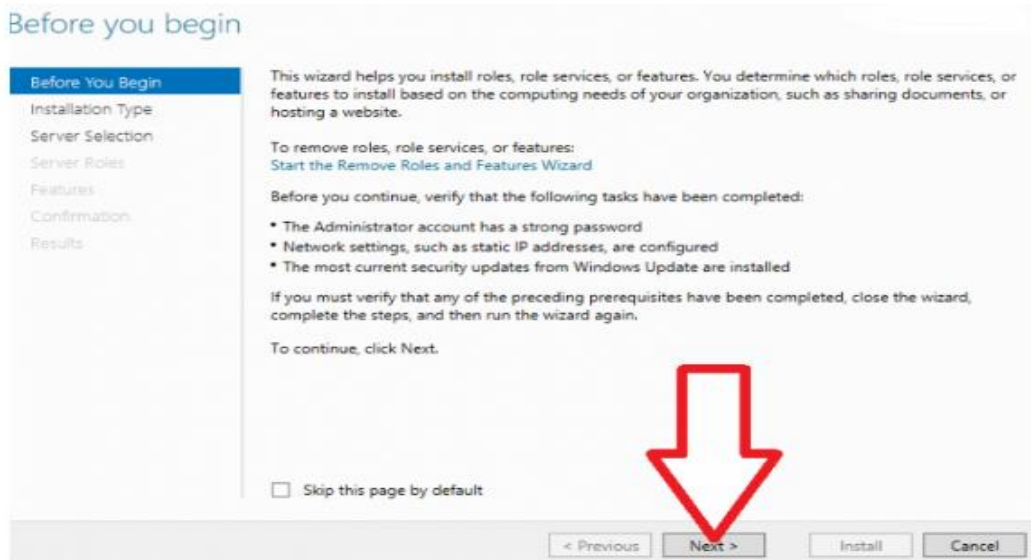
15.2- quota in windows server 2016

تفعيل تحديد مساحة تخزينه محددة داخل Windows Server 2016

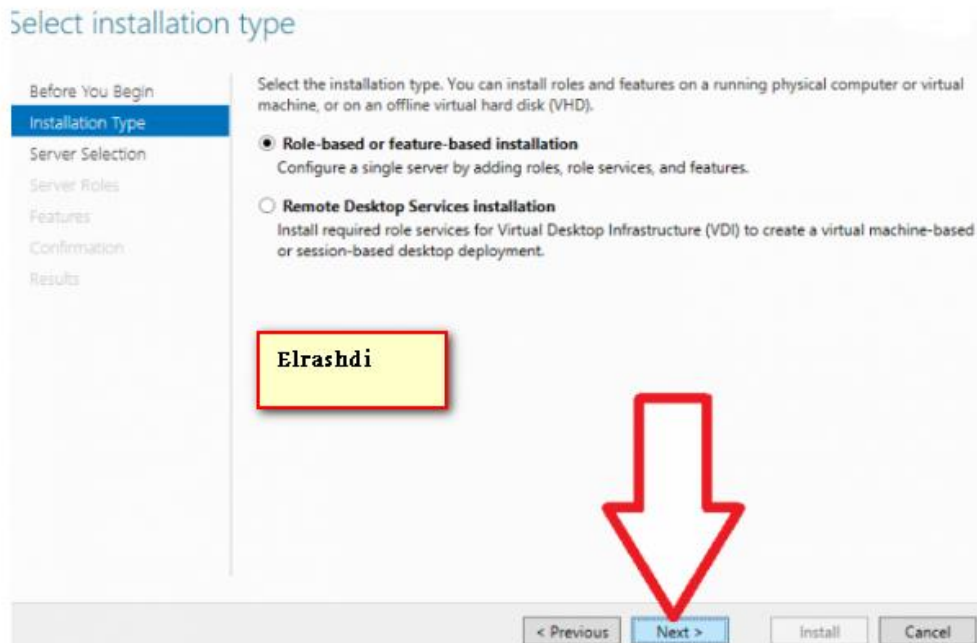
Start by logging into the Windows Server 2016. Then, on the Server Manager's dashboard, click on "Manage" and select "Add Roles and Features".



On the “Before you begin” screen click “Next”.

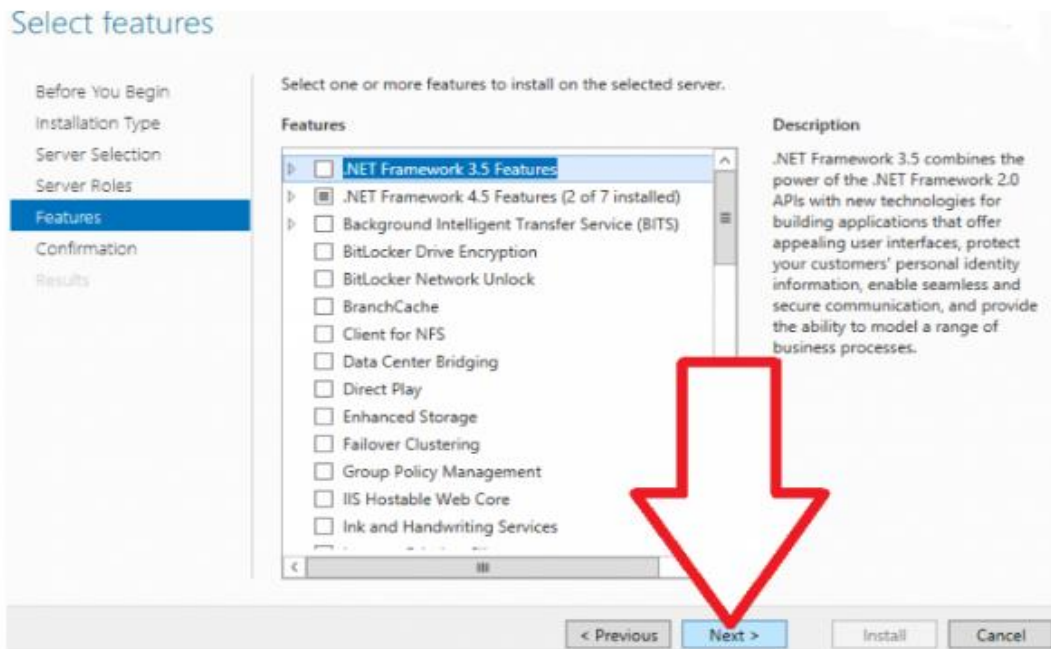


Select “Role-based or feature-based installation” and click “Next”

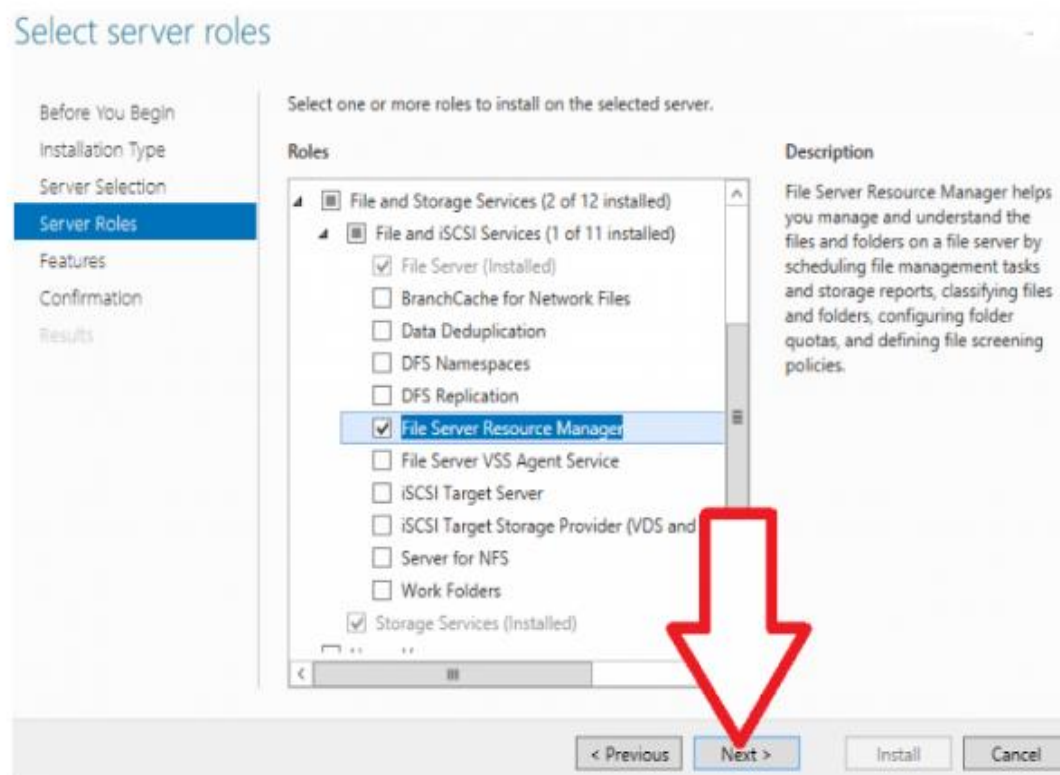


Select your destination server and click “Next”.

5. On the “Select Server roles” dashboard, expand “File and Storage Services” and “File and iSCSI Services”.



select “File Server Resource Manager”.



On the window that pops up, Click the “Add Features” button to incorporate the required features. Click “Next”.

Add features that are required for File Server Resource Manager?

The following tools are required to manage this feature, but do not have to be installed on the same server.

Remote Server Administration Tools

- Role Administration Tools
 - File Services Tools
 - [Tools] File Server Resource Manager Tools

☒ Include management tools (if applicable)

Add Features Cancel

If you do not need to add any extra features, just leave the default settings and click “Next”.

Select features

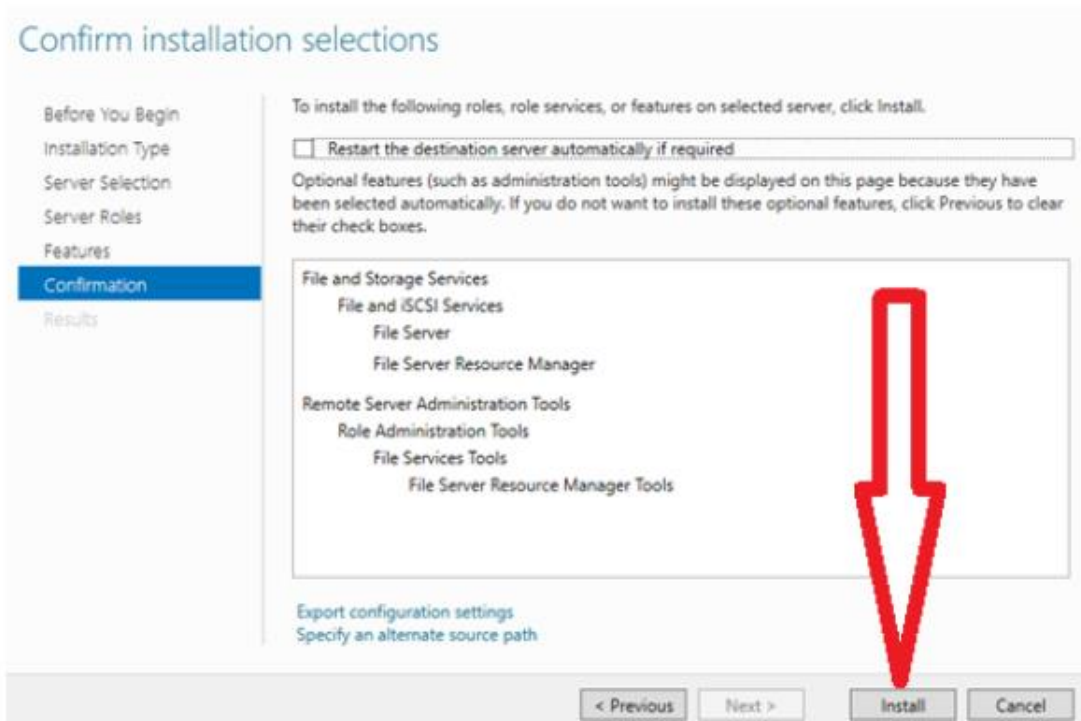
Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results

Select one or more features to install on the selected server.

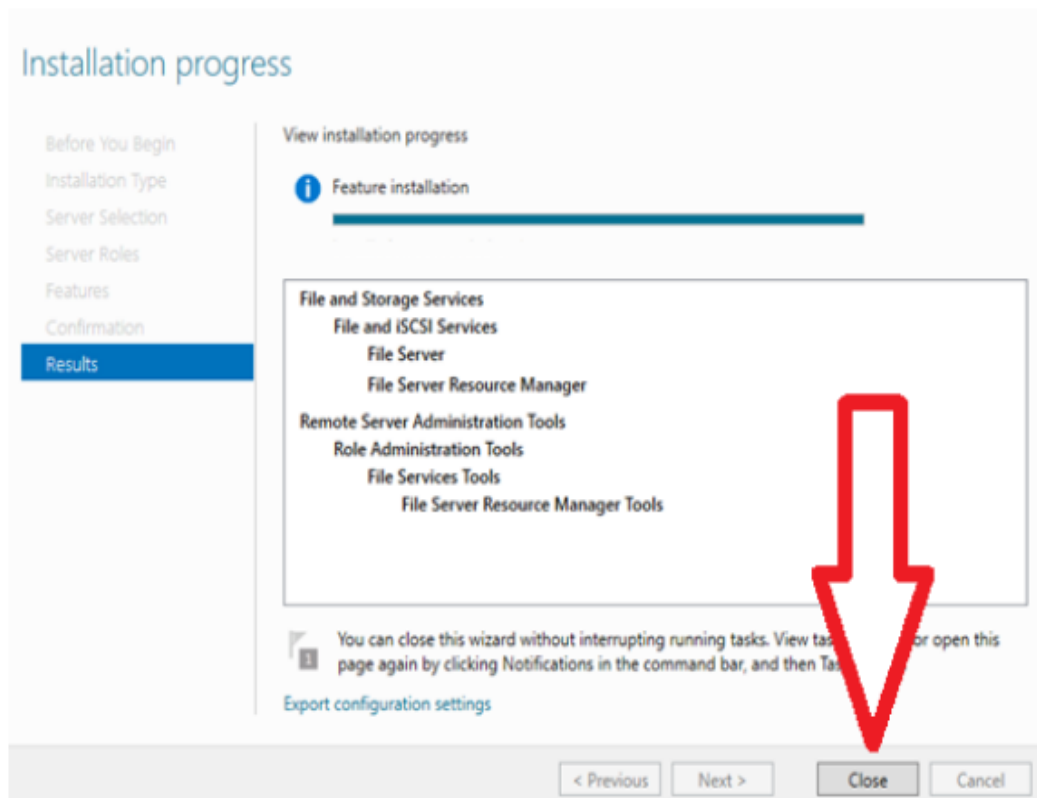
Features	Description
<input type="checkbox"/> .NET Framework 3.5 Features	.NET Framework 3.5 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer appealing user interfaces, protect your customers' personal identity information, enable seamless and secure communication, and provide the ability to model a range of business processes.
<input checked="" type="checkbox"/> .NET Framework 4.5 Features (2 of 7 installed)	
<input type="checkbox"/> Background Intelligent Transfer Service (BITS)	
<input type="checkbox"/> BitLocker Drive Encryption	
<input type="checkbox"/> BitLocker Network Unlock	
<input type="checkbox"/> BranchCache	
<input type="checkbox"/> Client for NFS	
<input type="checkbox"/> Data Center Bridging	
<input type="checkbox"/> Direct Play	
<input type="checkbox"/> Enhanced Storage	
<input type="checkbox"/> Failover Clustering	
<input type="checkbox"/> Group Policy Management	
<input type="checkbox"/> IIS Hostable Web Core	
<input type="checkbox"/> Ink and Handwriting Services	

< Previous Next > Install Cancel

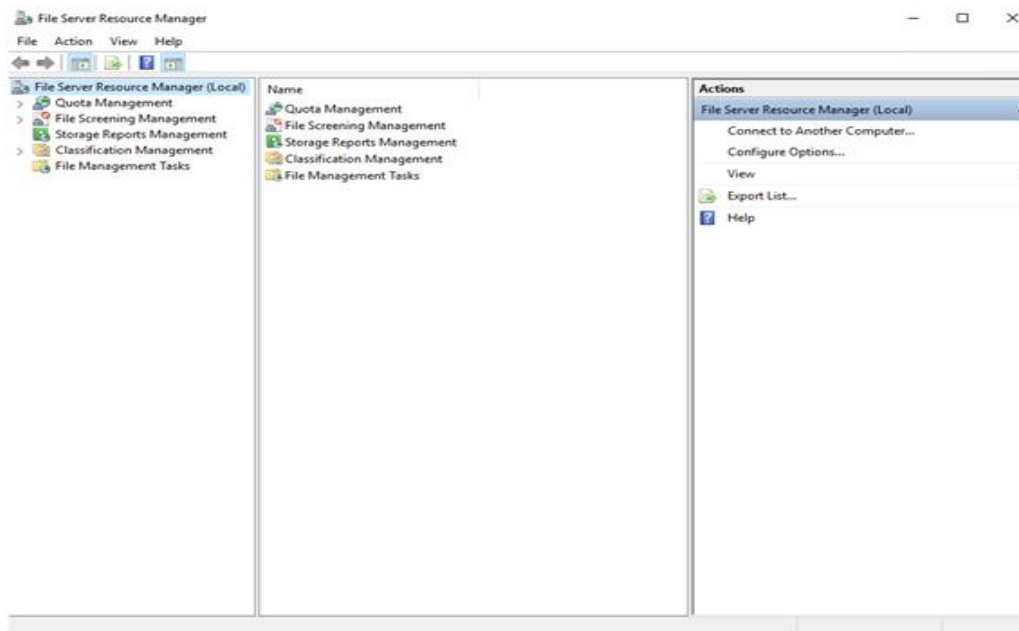
Confirm the installation selections and Click “Install” to start the process.



After the installation process is complete, click the “Close” button.

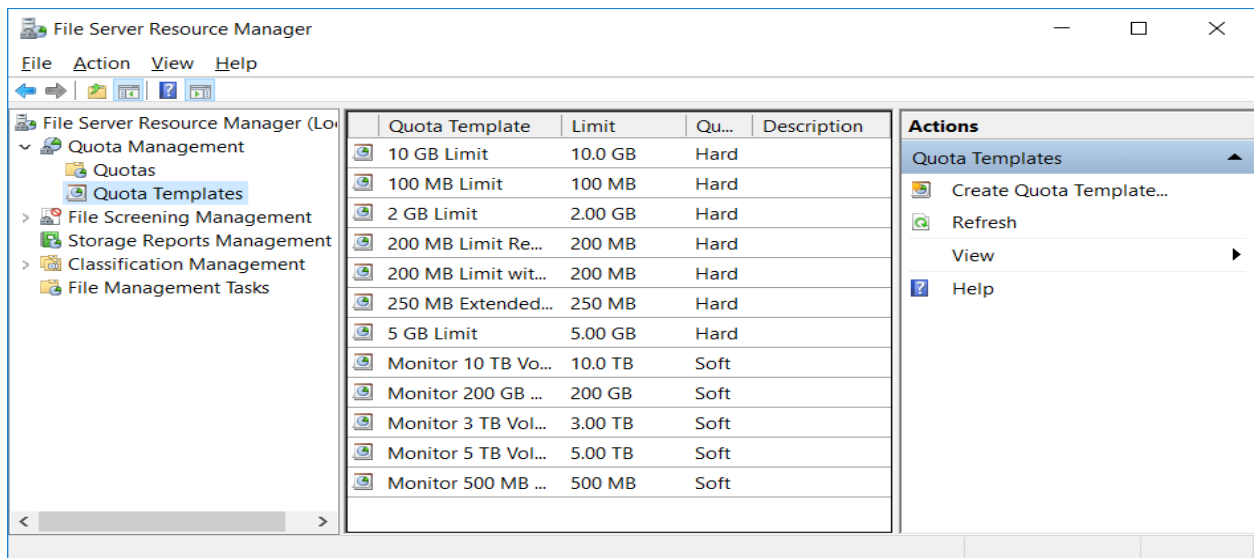


You can now access the File Server Resource Manager from the administrative interface and use it to create quotas.

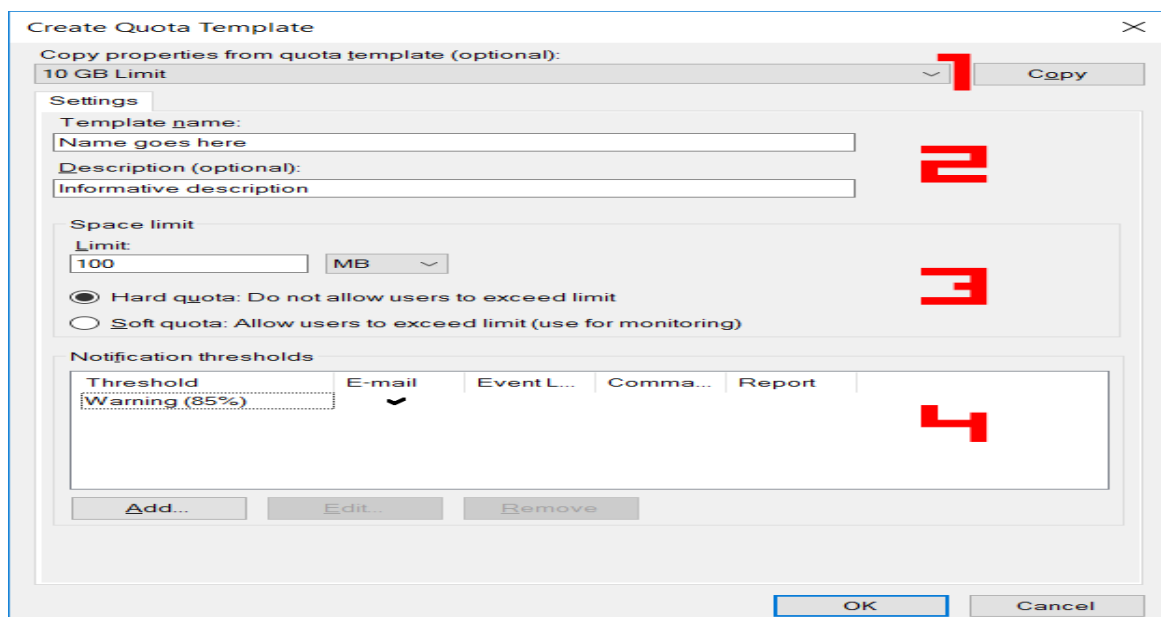


Quota Templates

To configure a quota, we must first create a quota template. This template will be applied to some specific directory later when we create the quota itself. We can view default quota templates available under Quota Management > Quota Templates. Each template will have it's own soft and hard limits defined as well as unique actions that should take place if a limit is reached.



We can either edit these existing templates by double clicking them, or select Create Quota Template to create a new one. We'll create a new template here to walk you through all of the available settings. The image below shows you the Create Quota Template window, we'll cover what each part does below.



16-WSUS in windows server

هو إحدى برنامج مايكروسوفت التي تمكن المسؤولين من إدارة توزيع التحديثات والإصلاحات العاجلة التي تصدر للمنتجات Microsoft الموجودة على أجهزة الكمبيوتر في دومين الشركات. يتم بتحميل هذه التحديثات من موقع مايكروسوفت ومن ثم توزيعها على أجهزة الكمبيوتر على الشبكة بهدف توفير استخدام الإنترنت حيث يتم تحميل التحديثات مرة واحدة فقط عن طريق السيرفر وأيضا ضمان عدم تزيل أى تحديثات لم يختبرها ويوافق عليها مسؤول إدارة الشبكة بالشركة.

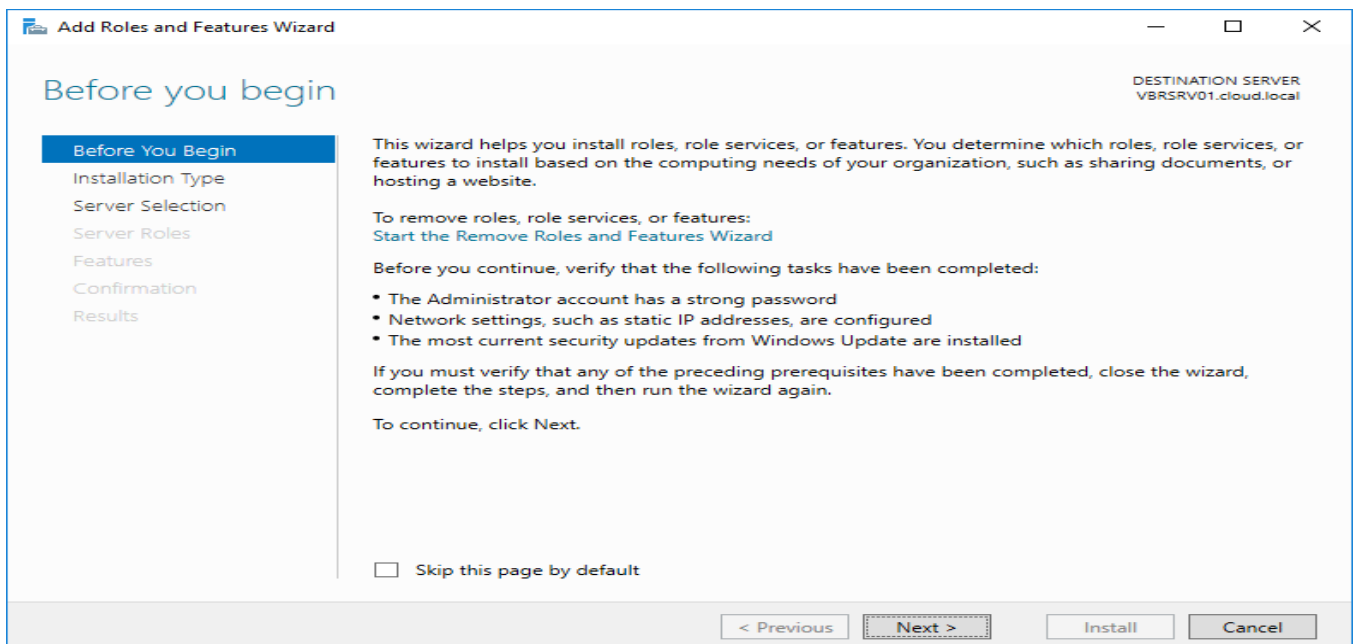
Windows Server Update Services (WSUS) enables information technology administrators to deploy the latest Microsoft product updates. You can use WSUS to fully manage the distribution of updates that are released through Microsoft Update to computers on your network. This topic provides an overview of this server role and more information about how to deploy and maintain WSUS.



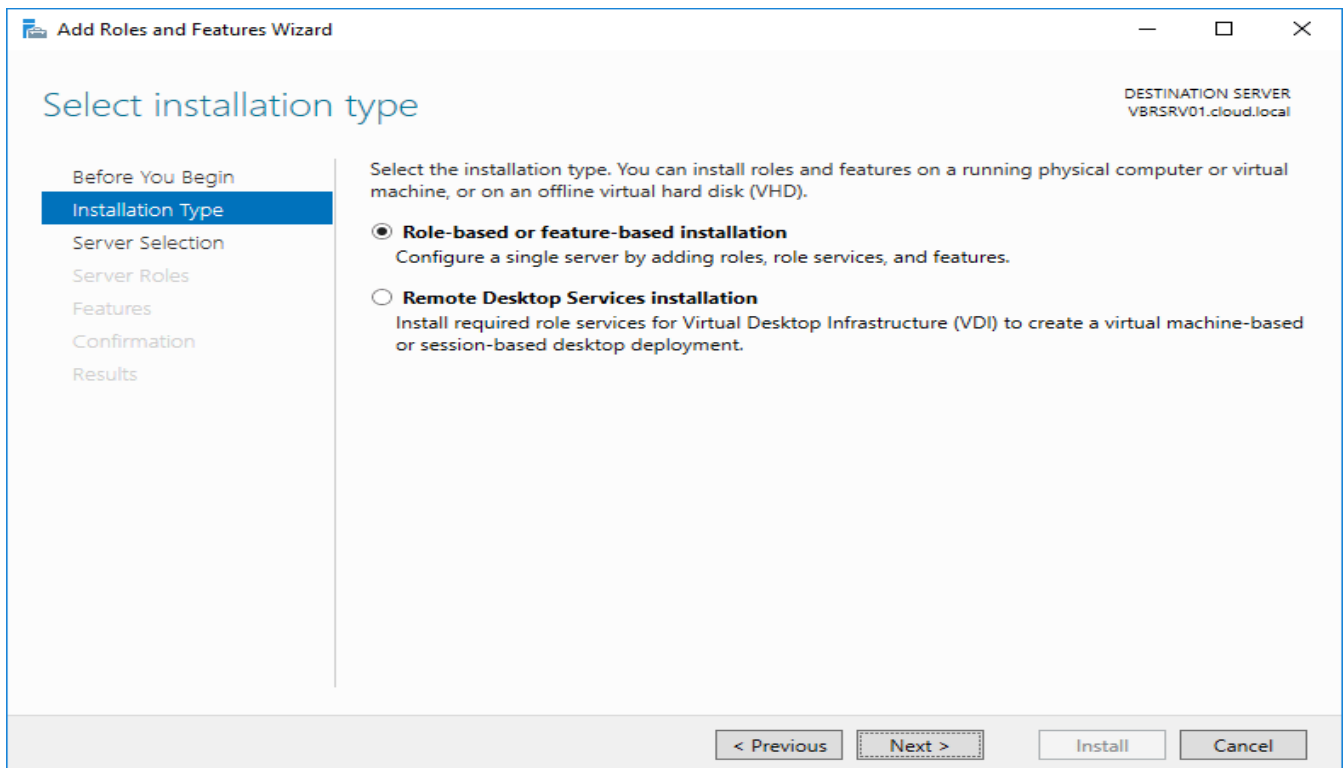
16.1- WSUS in windows server 2016

Windows Server Update Services or WSUS is a Microsoft product that allows us to centrally manage patches for Microsoft operating systems and other Microsoft products. With Windows Server 2016, the process is basically the same as previous server operating systems to install and configure the product and generally get up and running with WSUS managing our patches in a particular environment. Let's look at how to install and configure Windows Server 2016 WSUS.

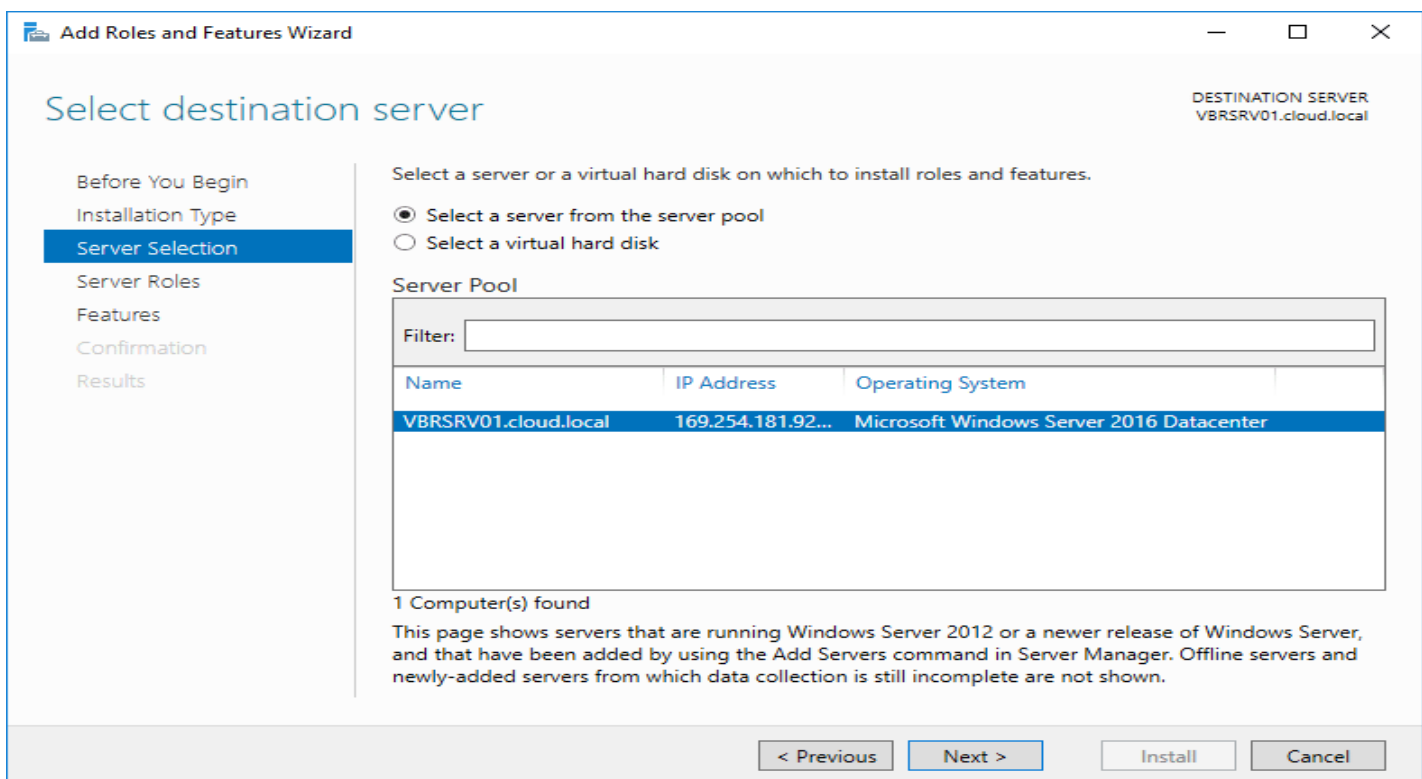
Installing the Windows Server Update Services role is very straightforward and is basically what we would expect with installing any role or feature. This is done through Server Manager. The process is fairly next, next, finish in nature.



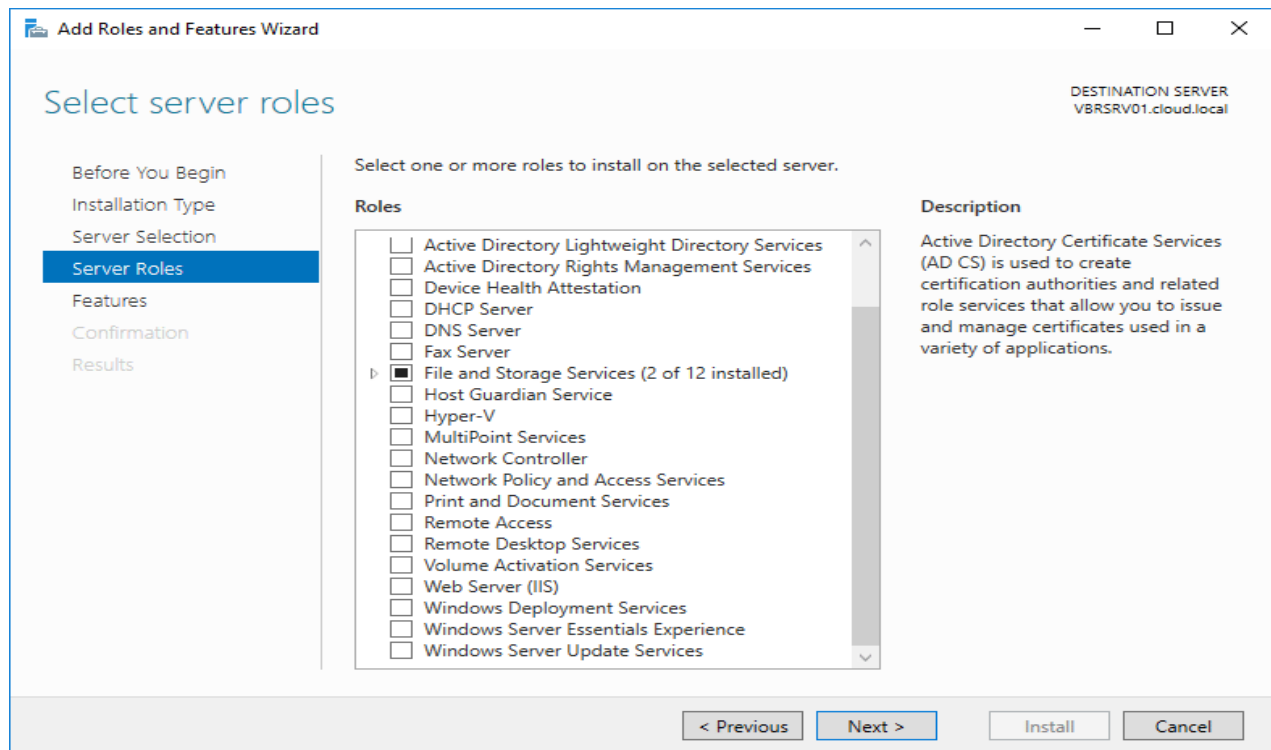
Here we select a role based installation.



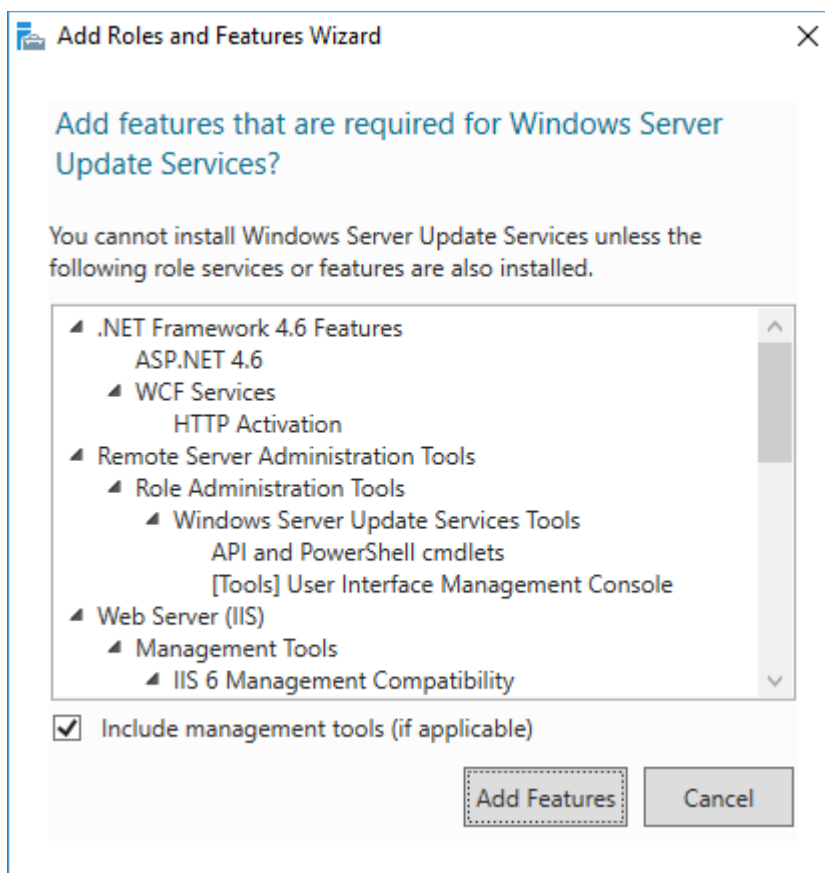
Select our server.



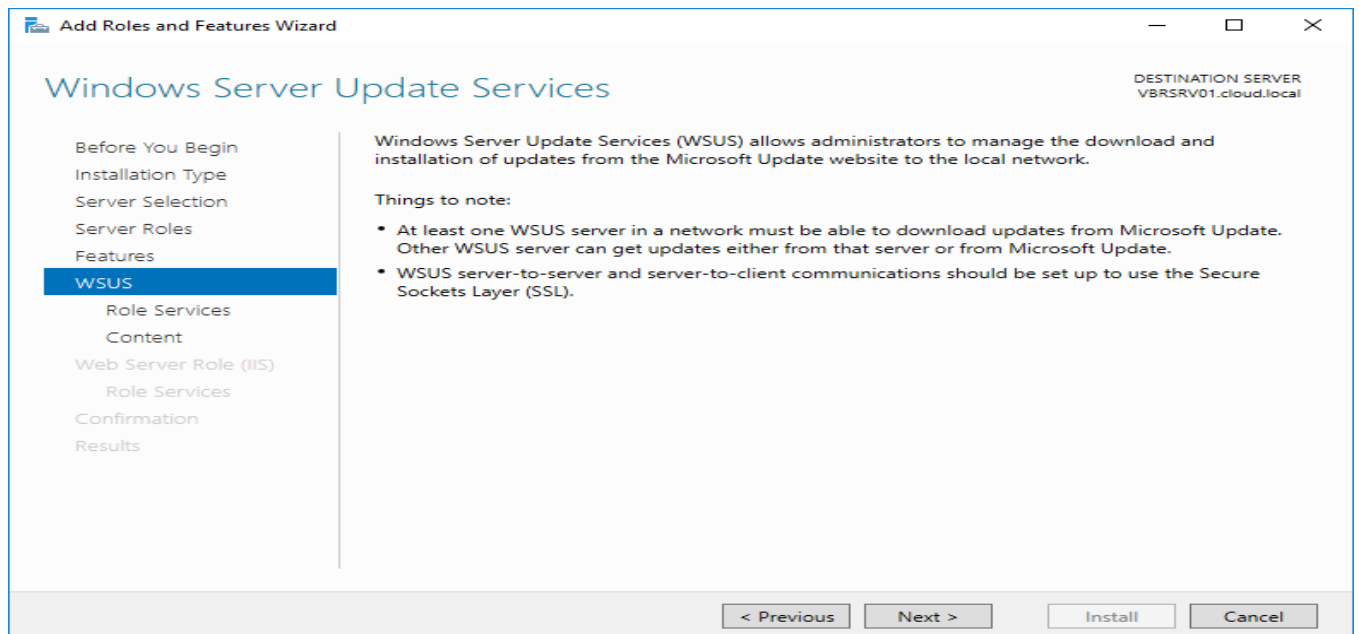
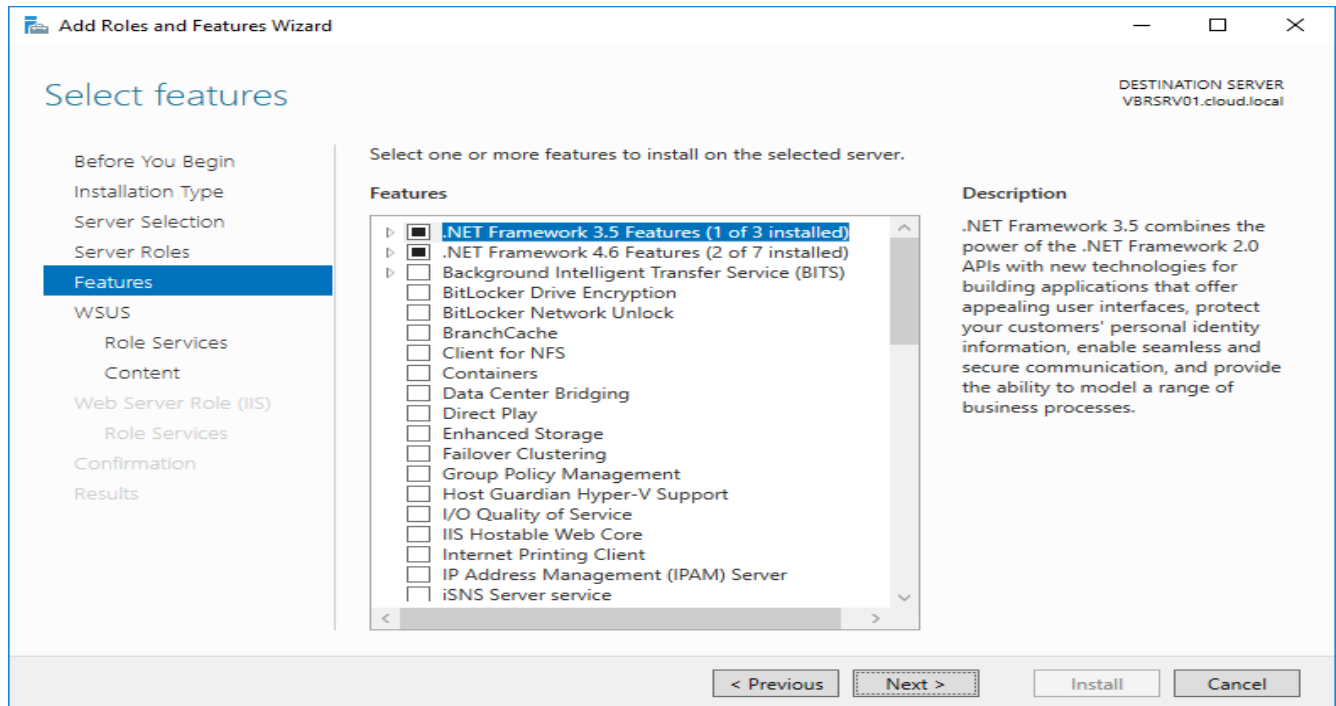
Choose Windows Server Update Services all the way at the bottom of the Server Roles.



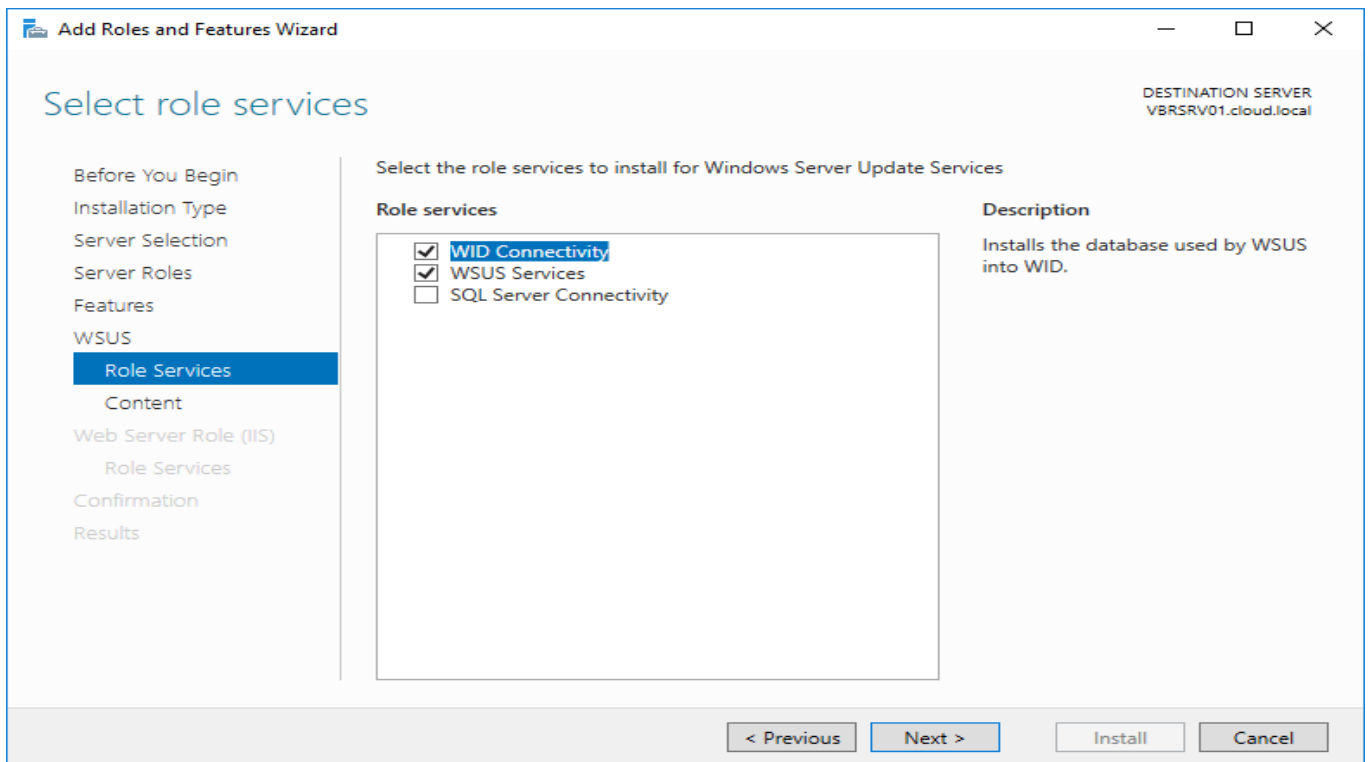
We will get prompted for additional features that need to be installed.



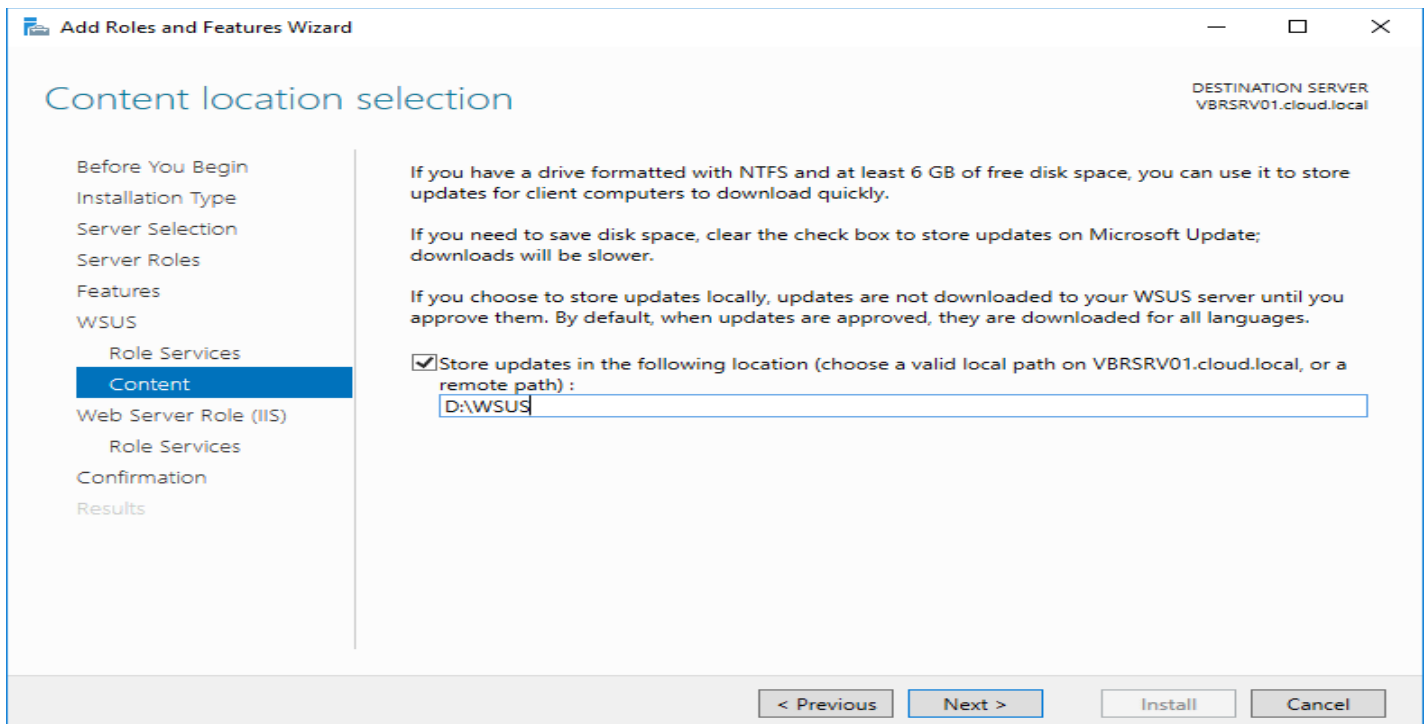
Next, Next finish process underway...



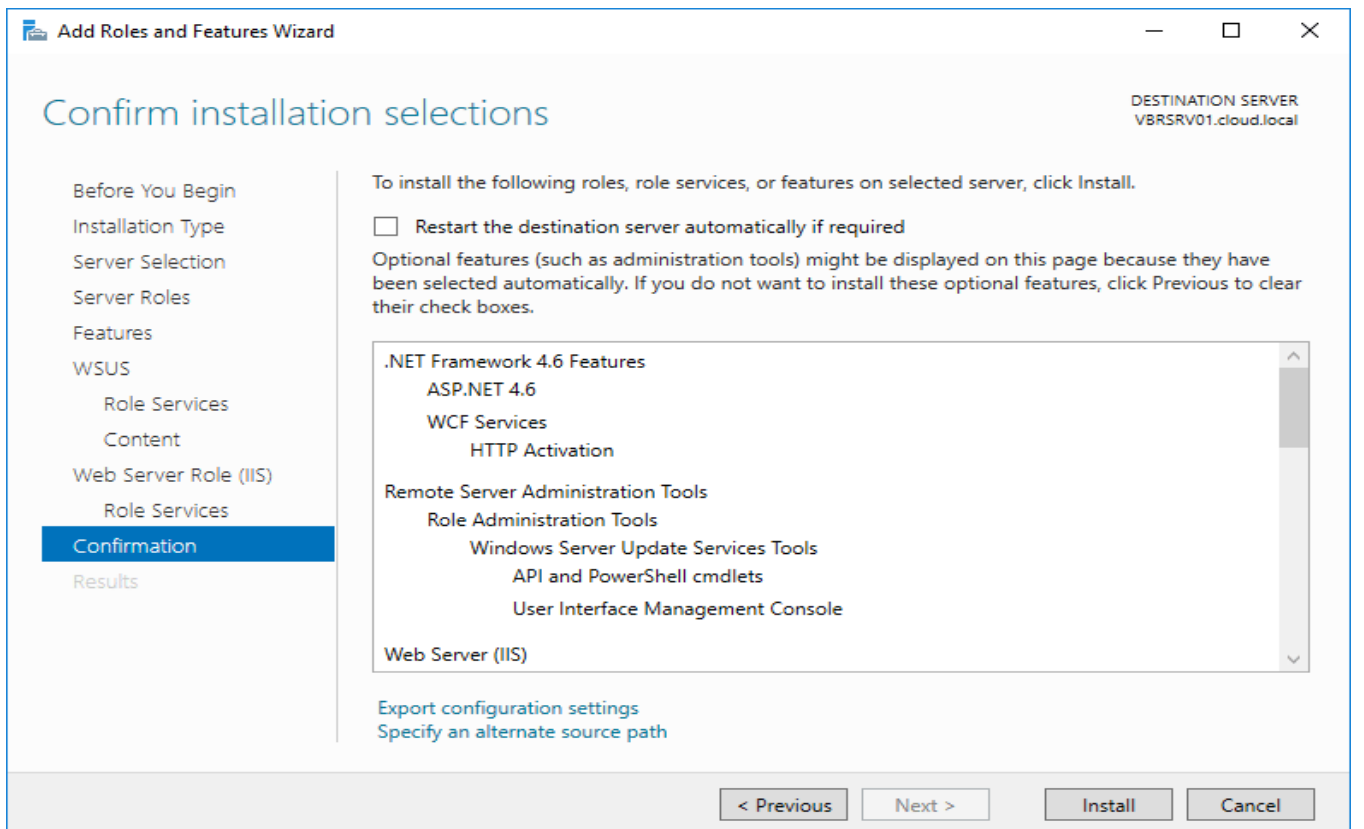
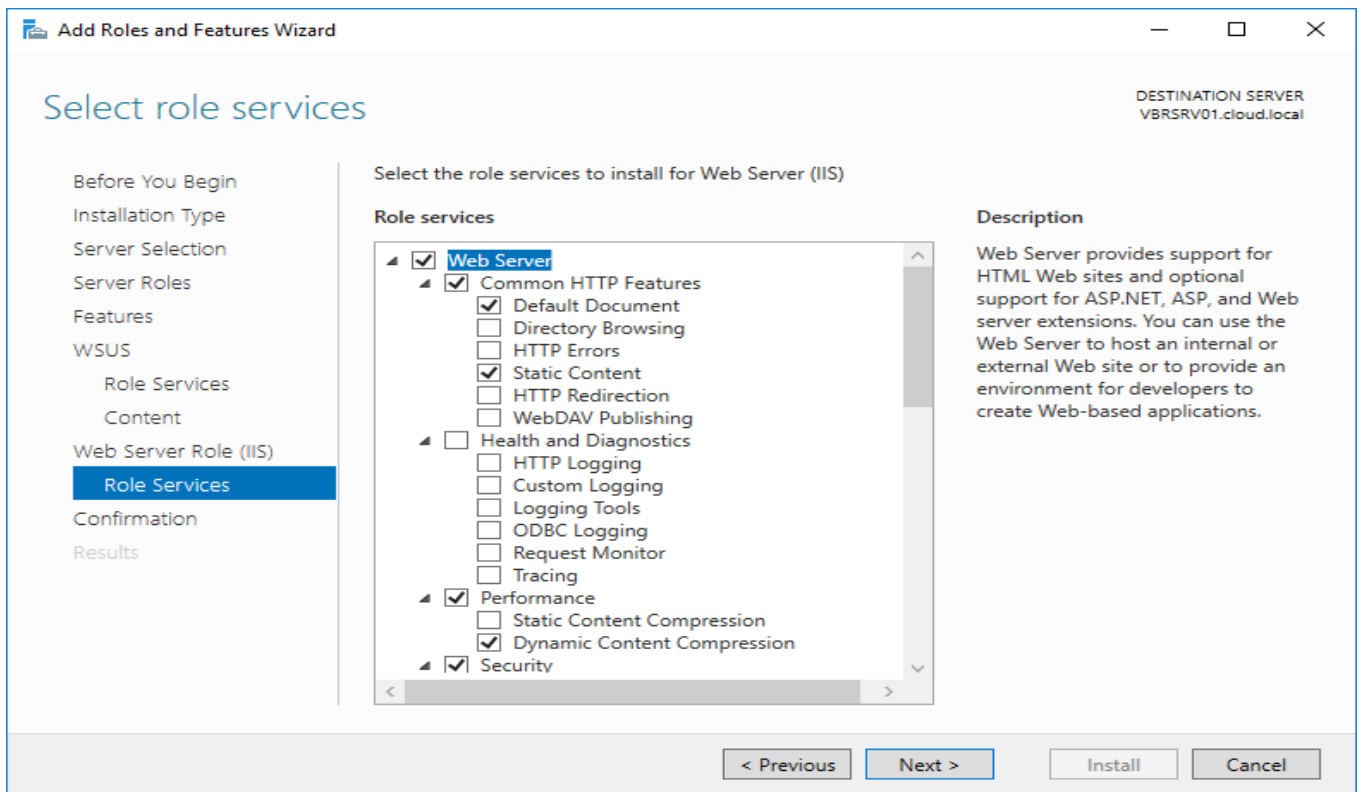
Finally, we get to the Role Services and should see WID Connectivity and WSUS Services.

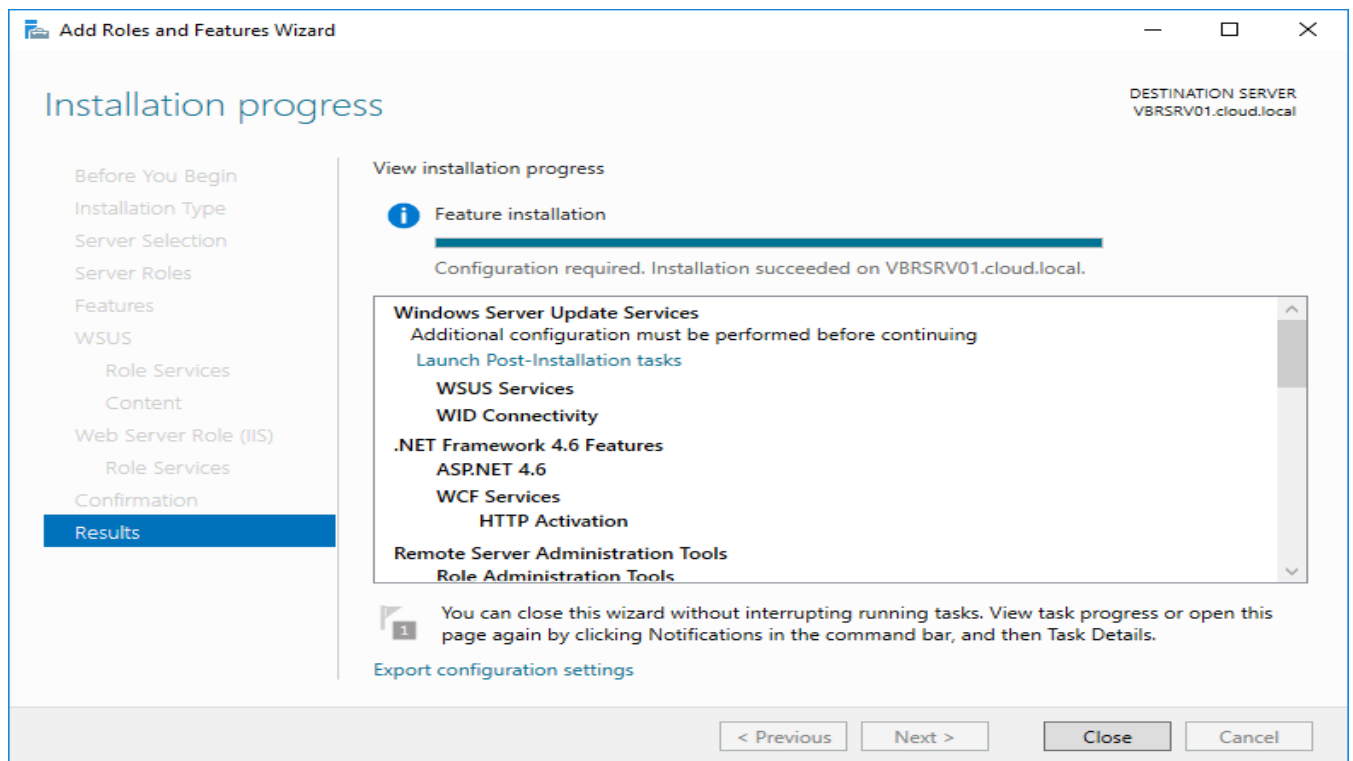


Here we select a file path to use for storing updates.

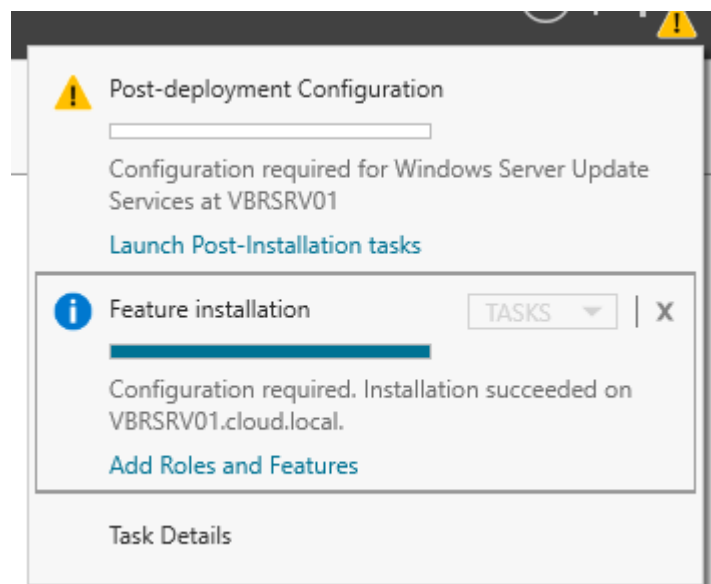


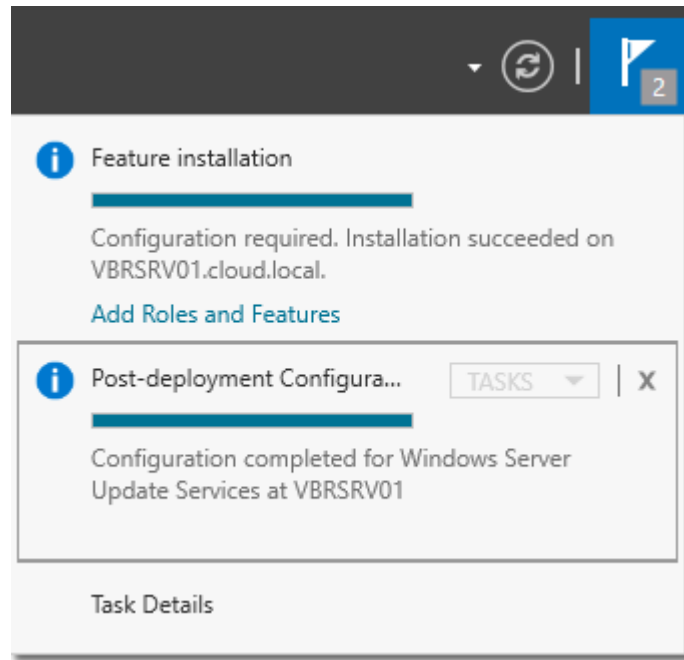
We will have Web Server Role services installed with WSUS.





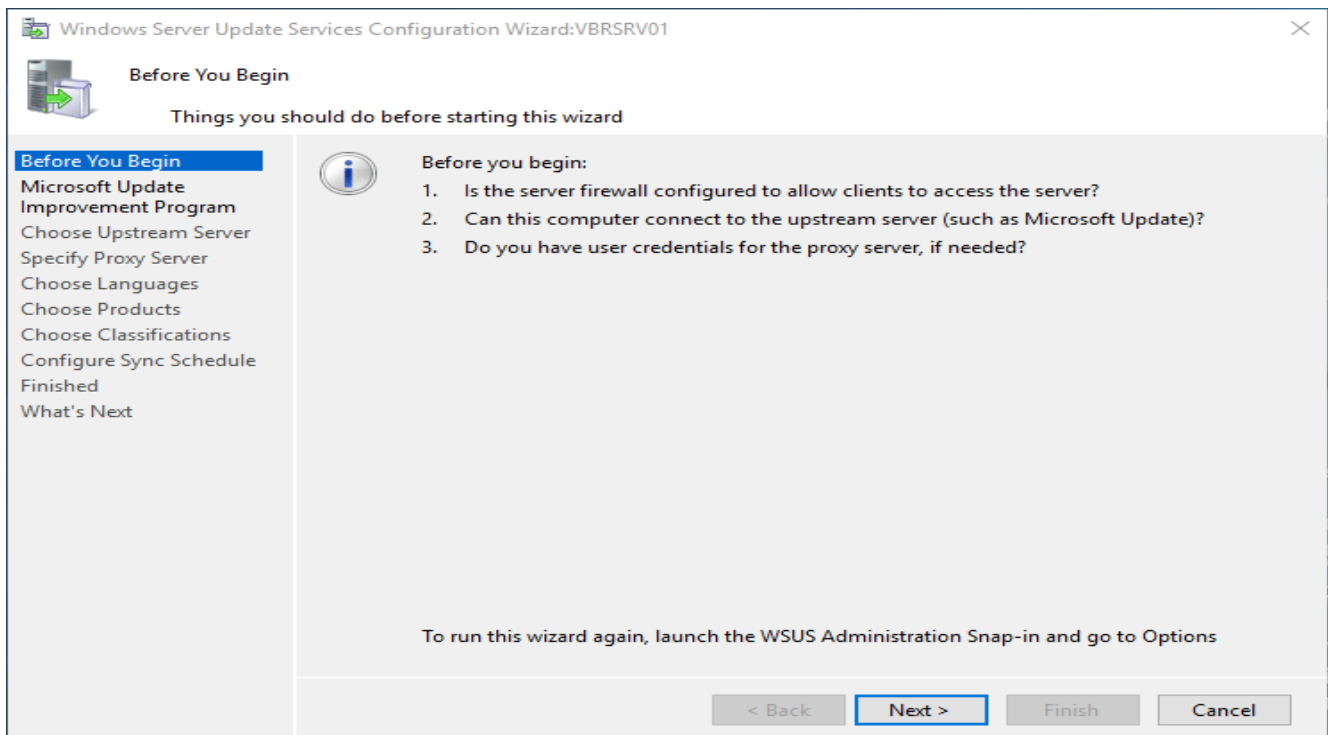
After the role service is installed, we will see a exclamation bang in the upper right hand corner of our Server Manager. It will show Post-deployment Configuration that will need to be done. Click this and it will finish things out.

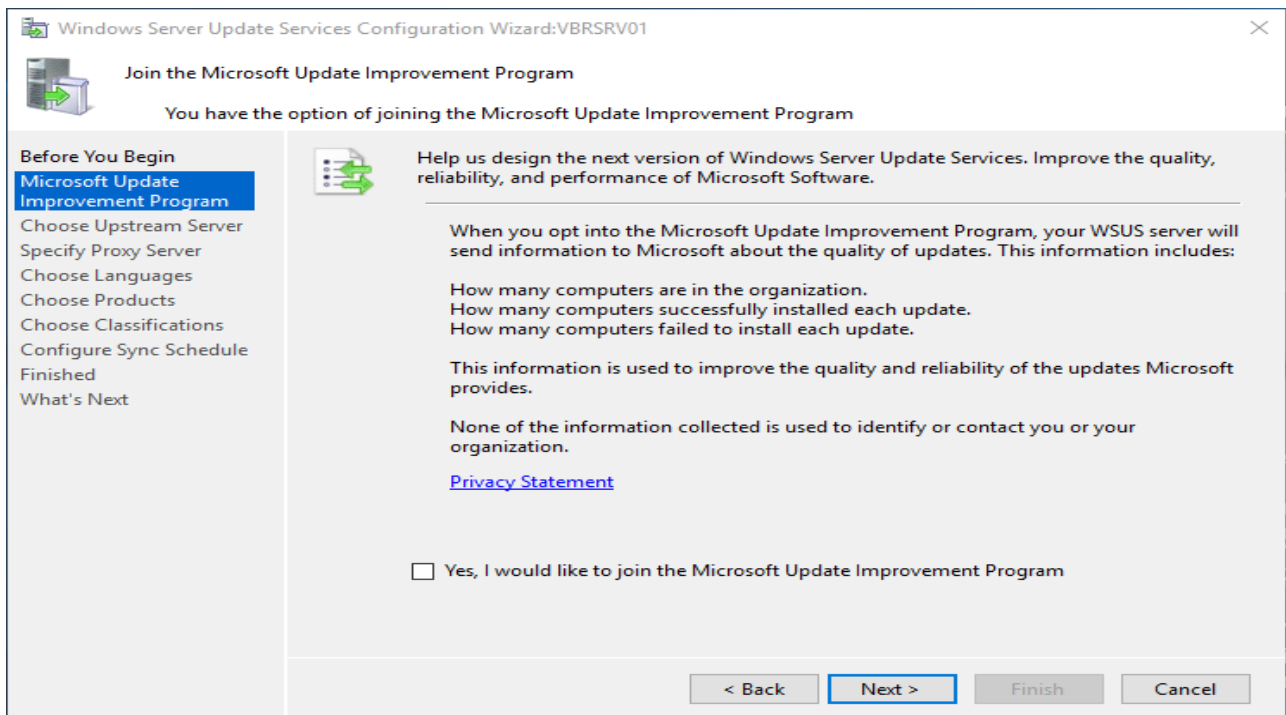




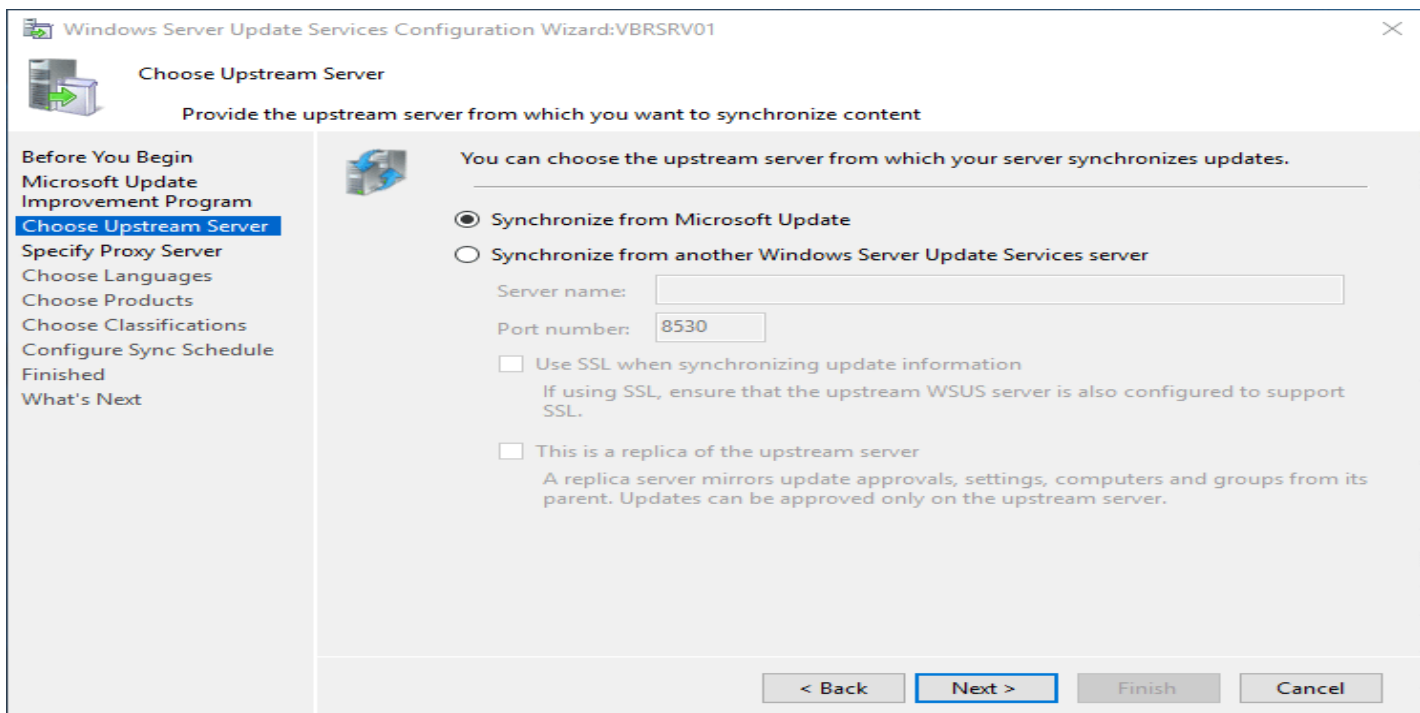
WSUS Specific Configuration

Now we begin the WSUS configuration itself where we actually setup our configuration for the WSUS server portion.





Since I don't have another WSUS server I am wanting to synchronize from, I choose to Synchronize from Microsoft Update which pulls directly from Microsoft.



Choose your connectivity options here. If you use a proxy, you need to configure it.

Windows Server Update Services Configuration Wizard: VBRSRV01

Specify Proxy Server

Provide proxy server settings for synchronizing updates with Microsoft Update

Before You Begin
Microsoft Update Improvement Program
Choose Upstream Server
Specify Proxy Server
Choose Languages
Choose Products
Choose Classifications
Configure Sync Schedule
Finished
What's Next

If this server requires a proxy server to access the upstream server, you can configure the proxy server settings here.

☐ Use a proxy server when synchronizing

Proxy server name:

Port number:

☐ Use user credentials to connect to the proxy server

User name:

Domain:

Password:

☐ Allow basic authentication (password is sent in cleartext)

< Back Next > Finish Cancel

Now, click the Start Connecting button. This process will take a long time depending on your connection.

Click Next.

Windows Server Update Services Configuration Wizard: VBRSRV01

Connect to Upstream Server

Download update information from Microsoft Update

Before You Begin
Microsoft Update Improvement Program
Choose Upstream Server
Specify Proxy Server
Choose Languages
Choose Products
Choose Classifications
Configure Sync Schedule
Finished
What's Next

To configure Windows Server Update Services on the following screens, we need to apply your upstream server and proxy server settings and synchronize information about available updates.

Information to be downloaded includes:

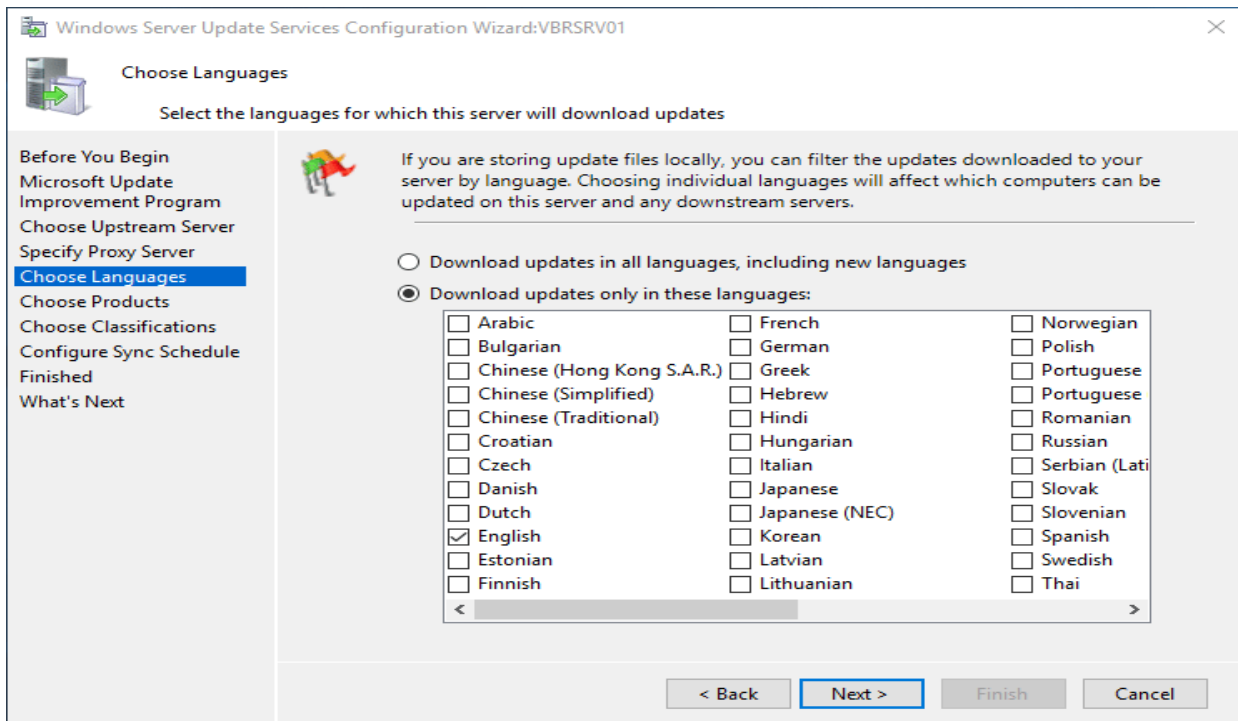
- Types of updates available
- Products that can be updated
- Available languages

Click Start Connecting to save and download upstream server and proxy server information. This process might take several minutes or longer, depending on your connection speed.

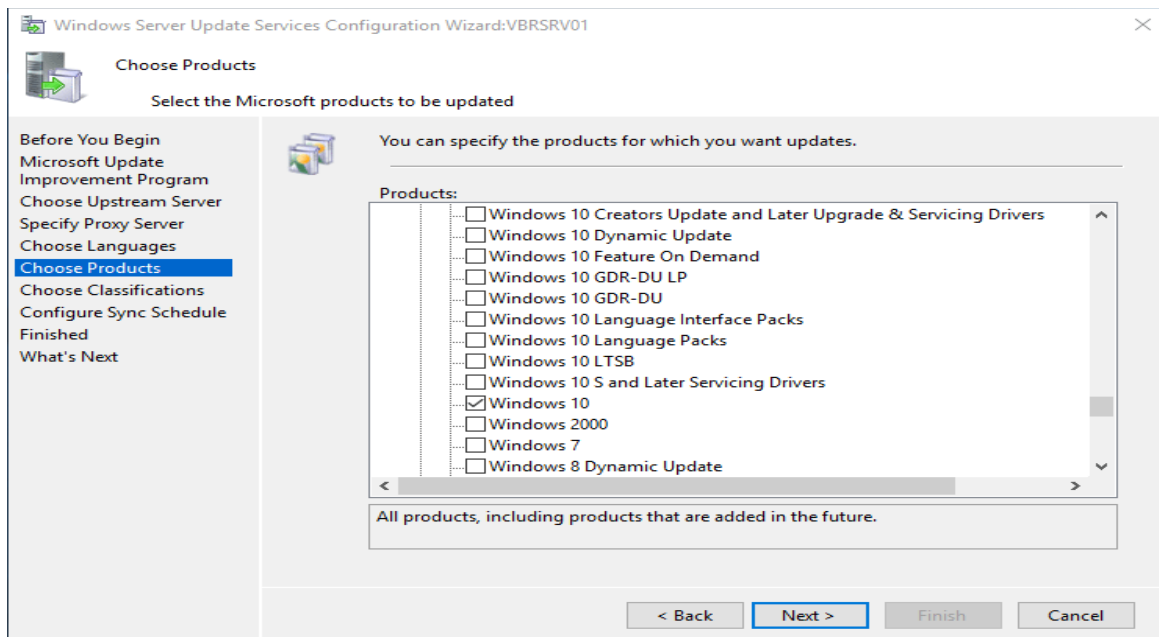
Start Connecting Stop Connecting

< Back Next > Finish Cancel

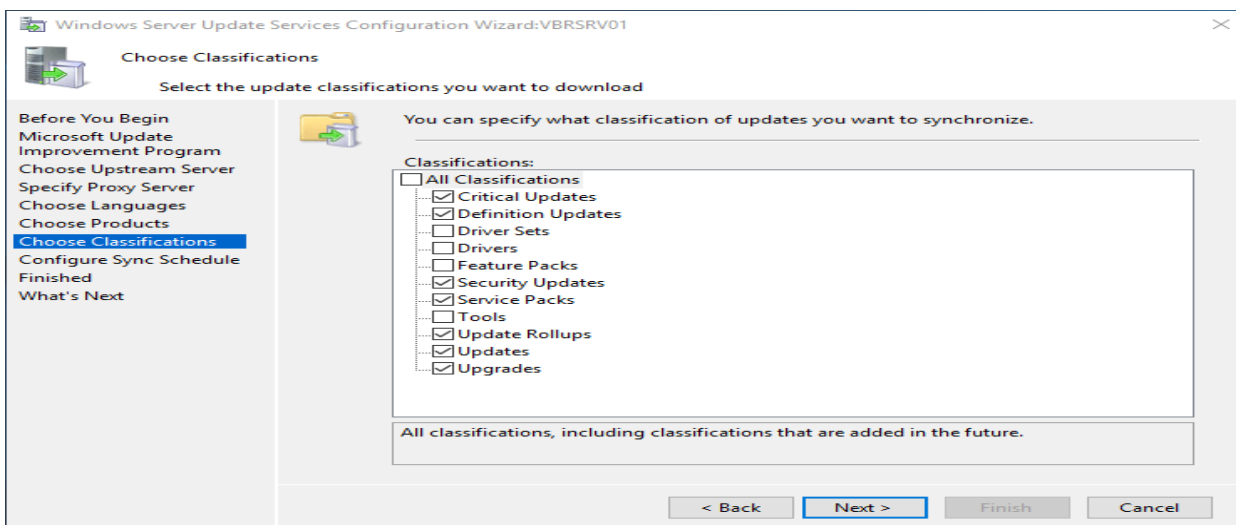
Choose your language here.



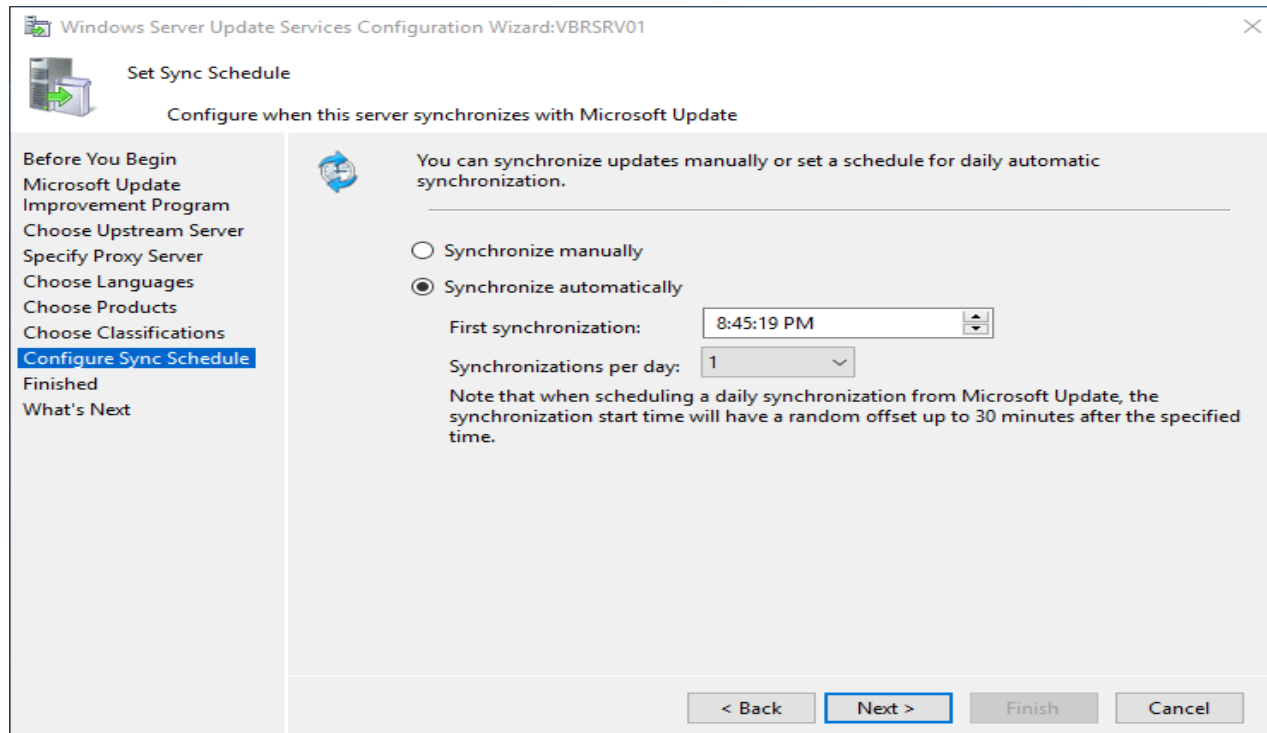
On our Choose Products screen we actually choose operating systems and products we want to pull down and store updates for.



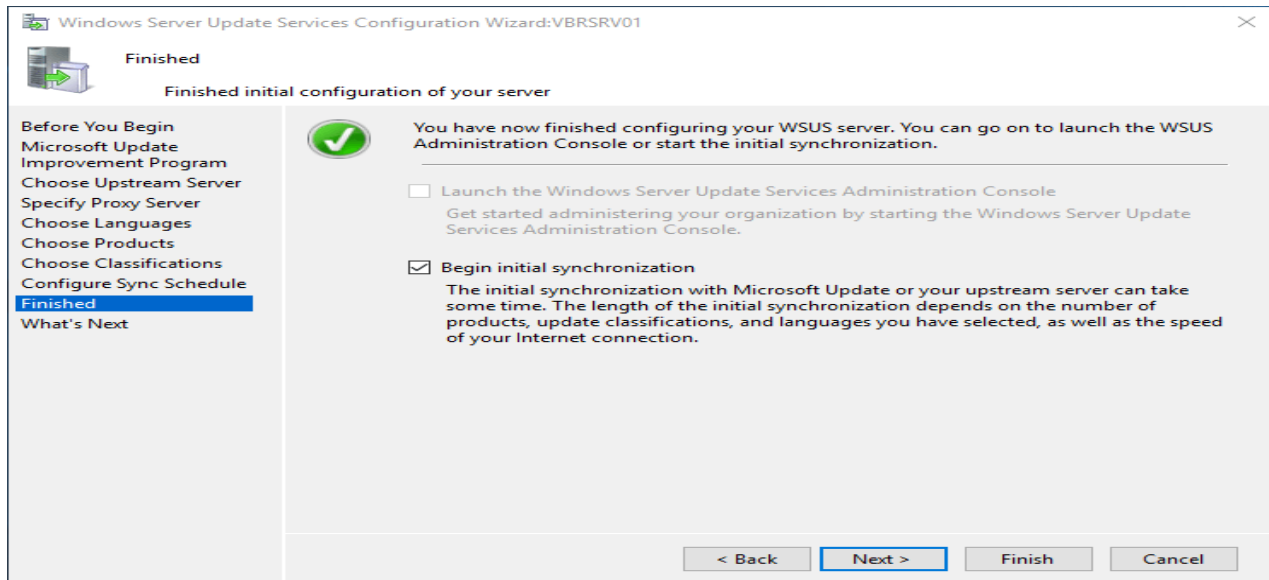
Next, we choose our Classifications where we can set the types of updates for the selected operating systems. This includes choices on Critical updates, drivers, feature packs, security updates, etc.



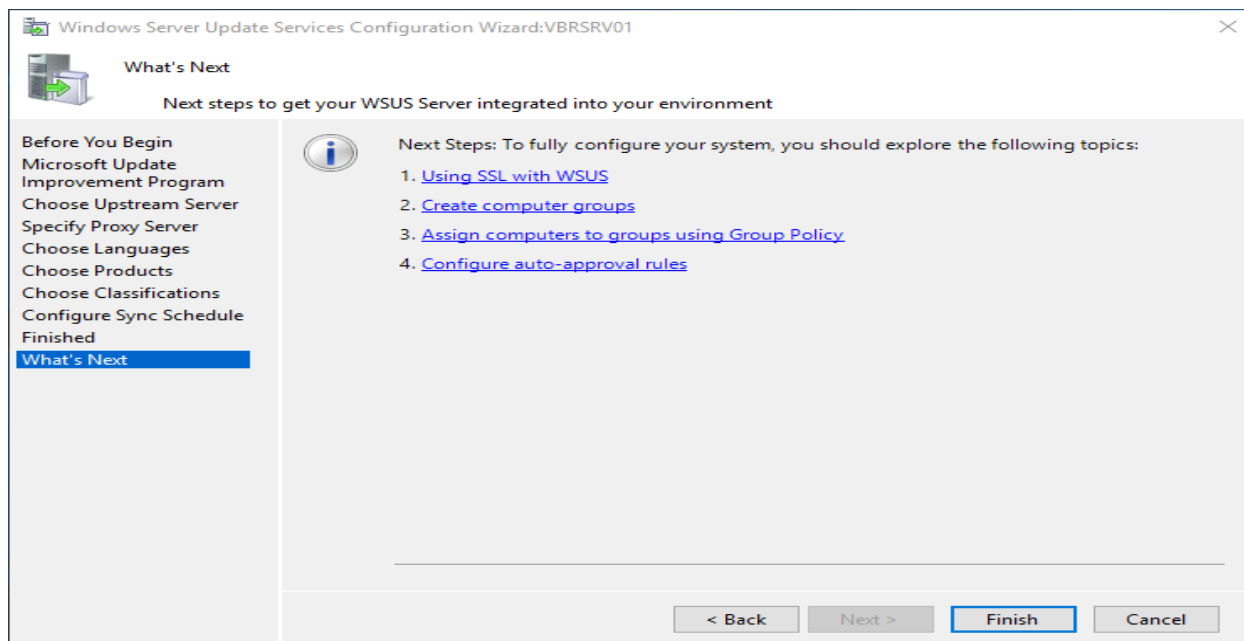
Next is our Sync Schedule where we configure when we want a synchronization with our upstream source server to happen. We can also set the number of synchronizations per day.



On the Finished screen, we can choose to Begin initial synchronization which will start pulling down the updates that meet the criteria.



The basic summary screen tells us what we might want to think about doing next including setting up SSL, creating computer groups, etc.



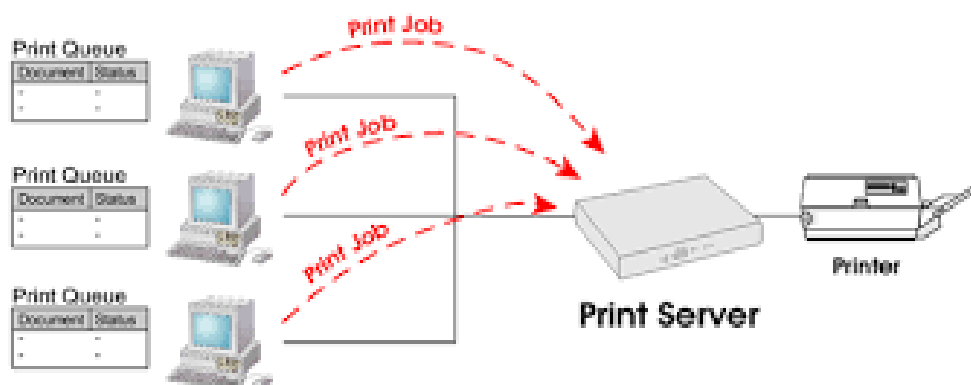
That concludes the basic Windows Server 2016 Install and Configure of WSUS.

17- printer server in window server

هو جهاز خادم موصل به طابعة أو أكثر بإمكانه استقبال أوامر الطباعة من جهاز حاسوب زبون خارجي موصل إلى خادم الطباعة عبر شبكة حاسوبية يقوم بعدها خادم الطباعة بإرسال البيانات إلى الطابعة (أو الطابعات) المناسبة التي يديرها.

Printing and file sharing are the essential sectors for users, groups, organizations in a network. Like in a network, there are a large number of printers with different varieties and there are an enormous number of groups, users who need to use. As an administrator, you should know how to install and configure print services in Windows Server to manage tens or hundreds of printers in a network. As most of the modern printers have a network interface card and Internet Protocol (IP) address can be assigned to the printers. Therefore, all users through the network can access and use them. One of the most handful features in print services is print pooling by which a number of printers are added to a pool. When one is performing a print job, other printers perform the next print jobs sent to them. As you can grant priority access to a printer from 1 through 99. When there are two print jobs in the print server, the user with higher priority will get the job done before the another. In this lesson, we will learn + understand how to install and configure print services fully in Windows Server 2016. Let's get started.

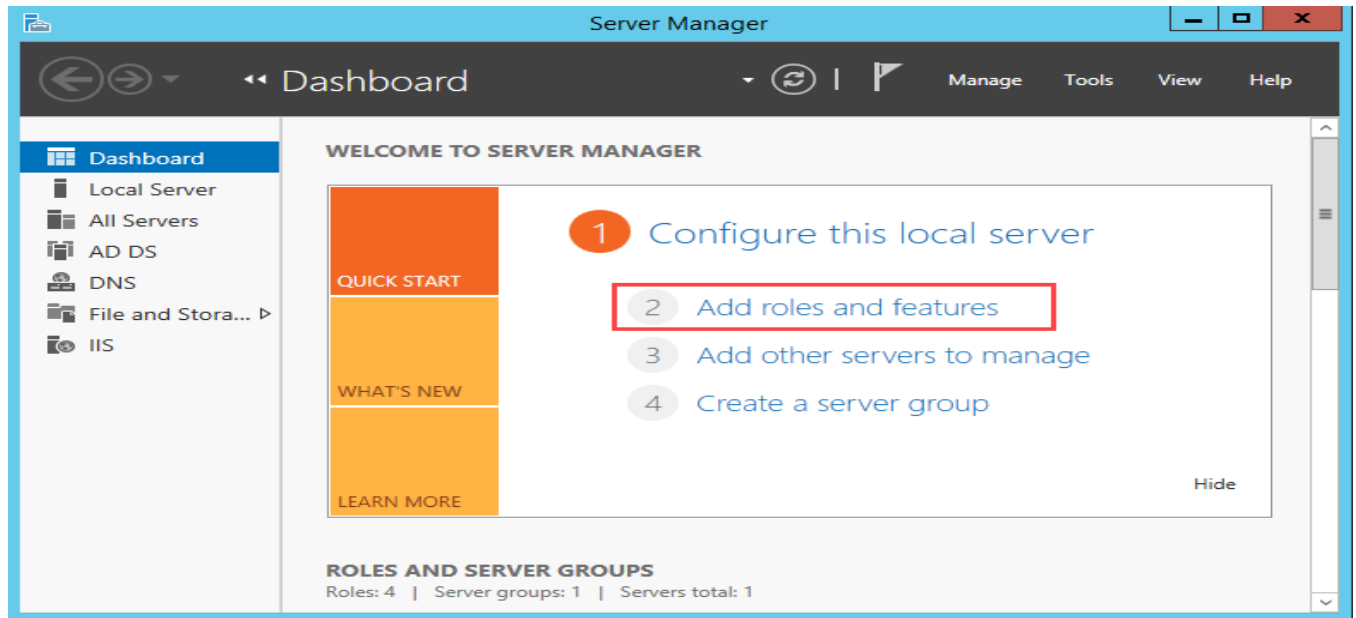
PTP (Peer-to-Peer) Printing



17.1- Install Print Services Role in Windows Server 2016

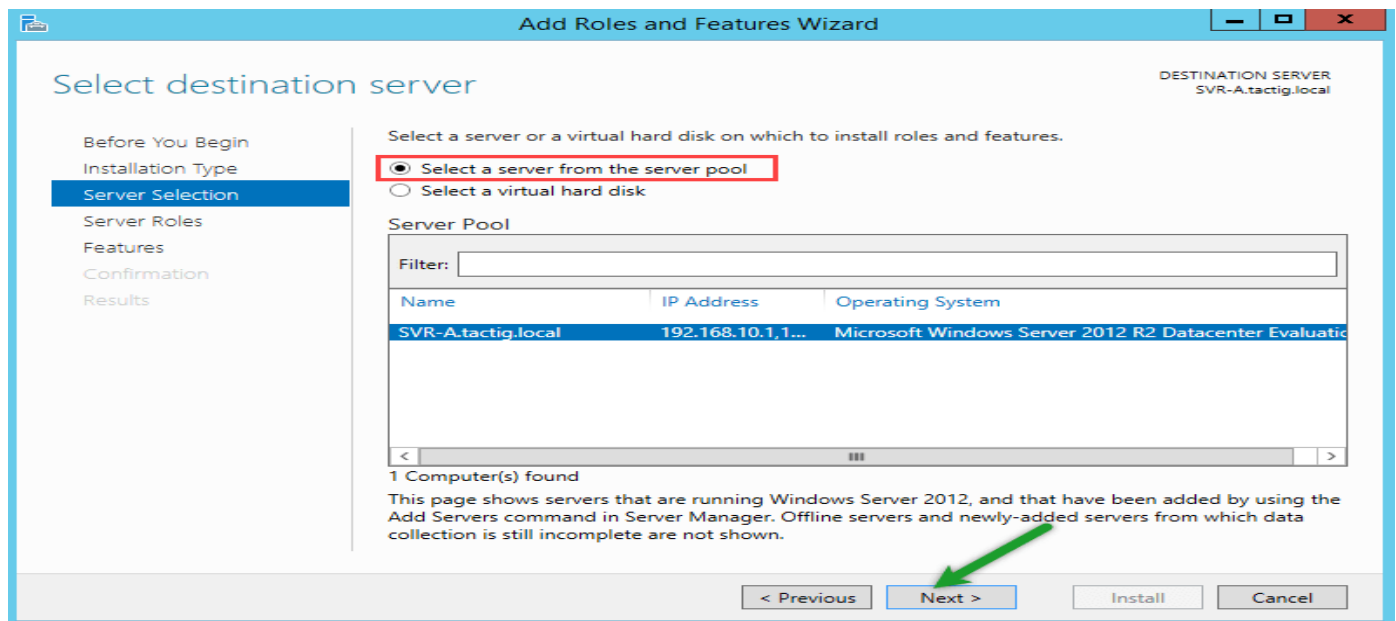
Role Installation

Open Server Manager and click on **Add roles and features** to install Print and document services role.



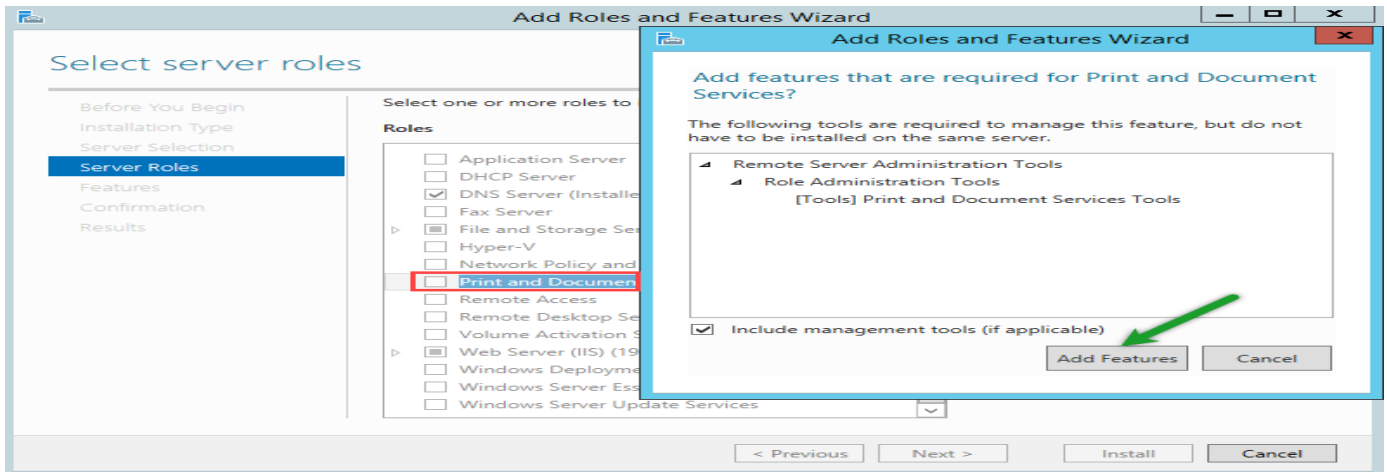
Add roles and features

In the Welcome we've got nothing to do at all. Click on **Next** button. In **Select destination server** page, elect the **Select a server from the server pool**. Select the server you want to install the role on from the list below. Click on **Next** button.



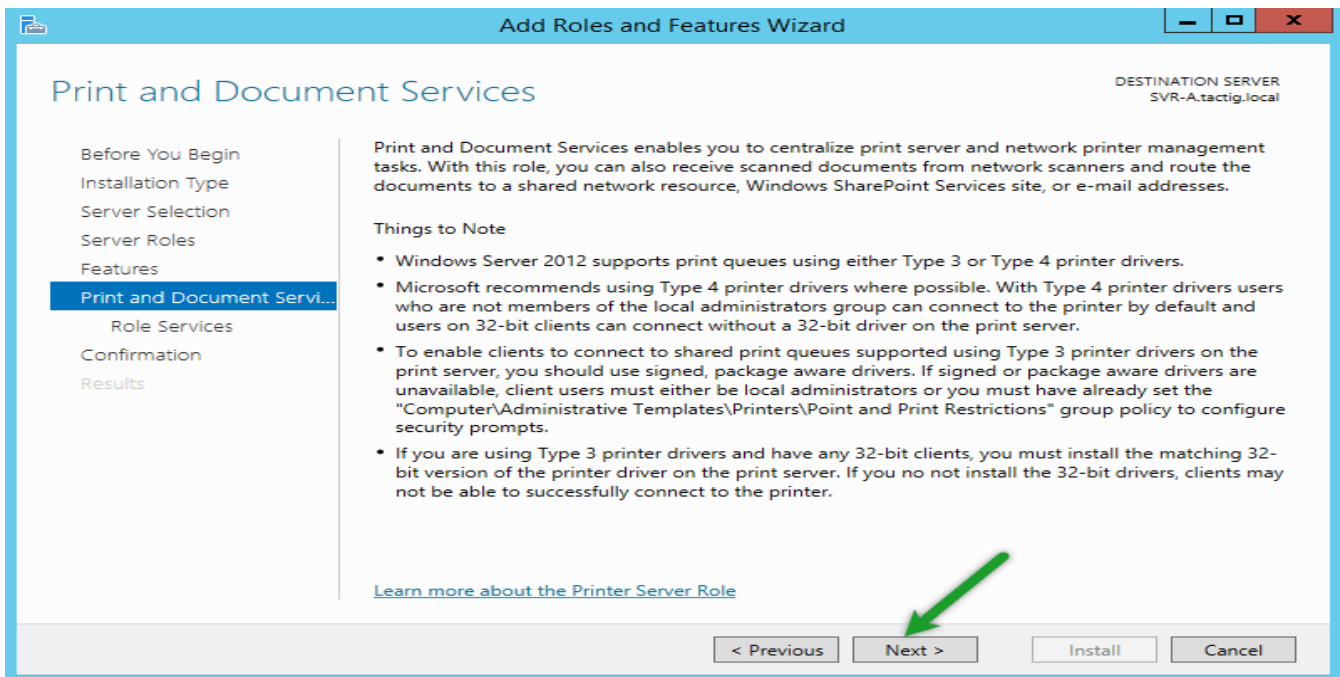
Select a server from server pool

Put a check mark in the box next to Print and document services. A small windows pops up and wants you to add some features for print services management. Click on Add features to install management tools. If you don't install the management features, you just install the core service.



Print and document services

In the **Print and Document Services** page, provided essential information about the services to be noted. Finally click on **Next** button.



Print and Document Services

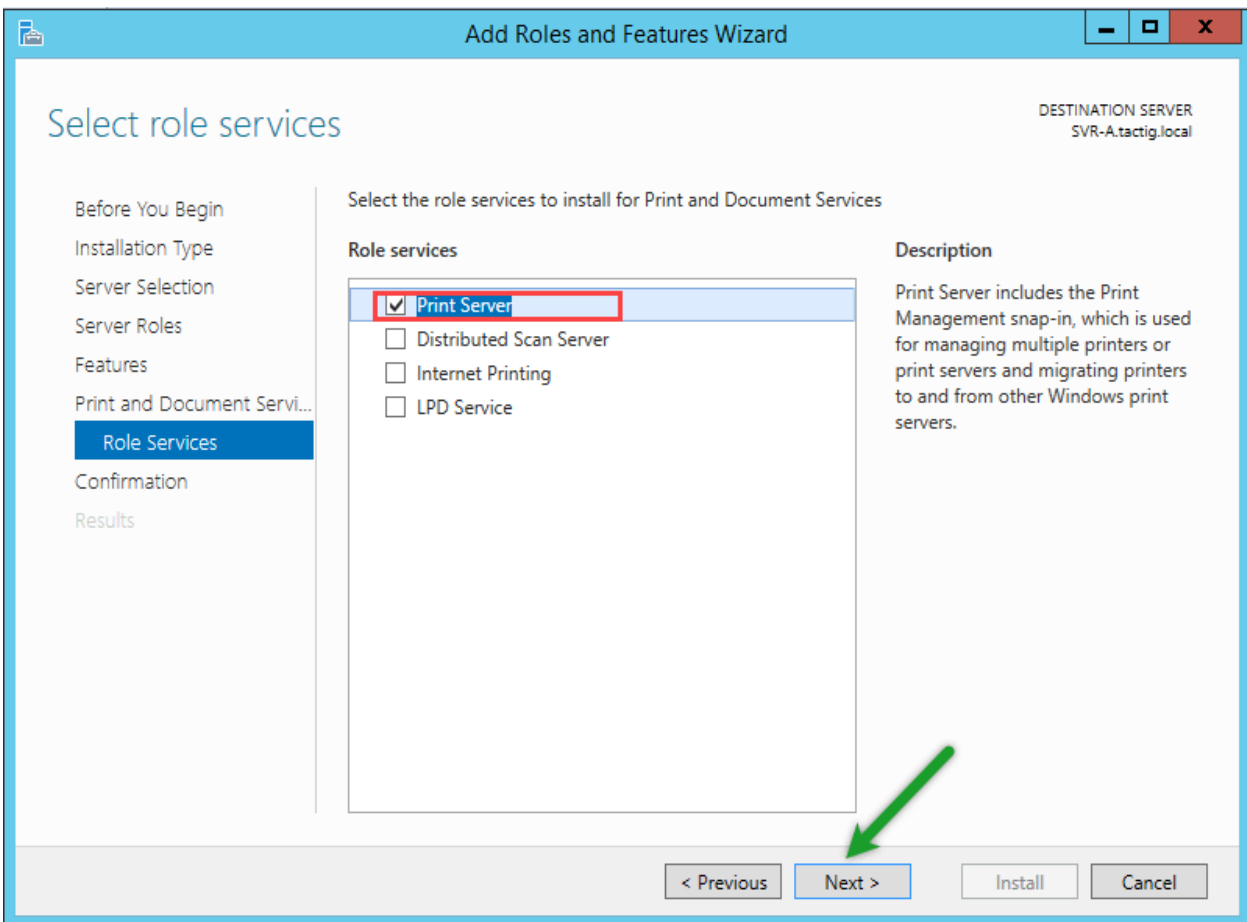
In the **Select role services** page four options are visible:

Print Server: It is the actual print server. Selecting this option you can manage print services components as printers and drivers and furthermore things.

Distributed Scan Server: allows you to send scanned images to specific users or groups in the domain.

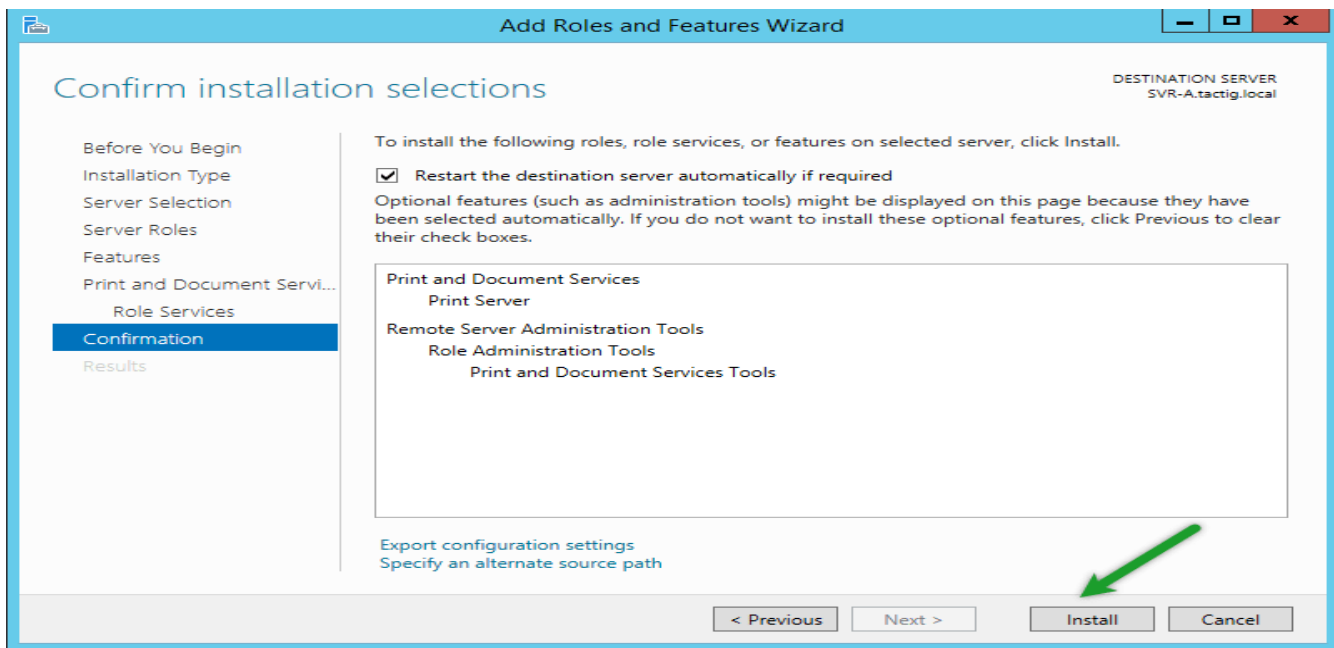
Internet Printing: It creates a web page and gives the access to printer clients using printers through IIS web server.

LPD Service: This option enables UNIX clients running line printer remote (LPR) to send print jobs to Windows printers. I install only Print Server.



Select Role Services

We're almost done. Click on **Install** button for installing the role on server. No reboot is needed.



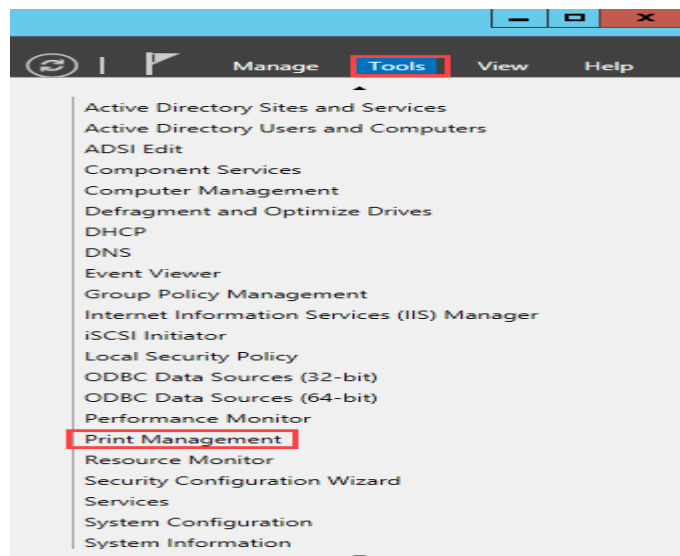
Confirm installation selections

Configure Print Services in Windows Server

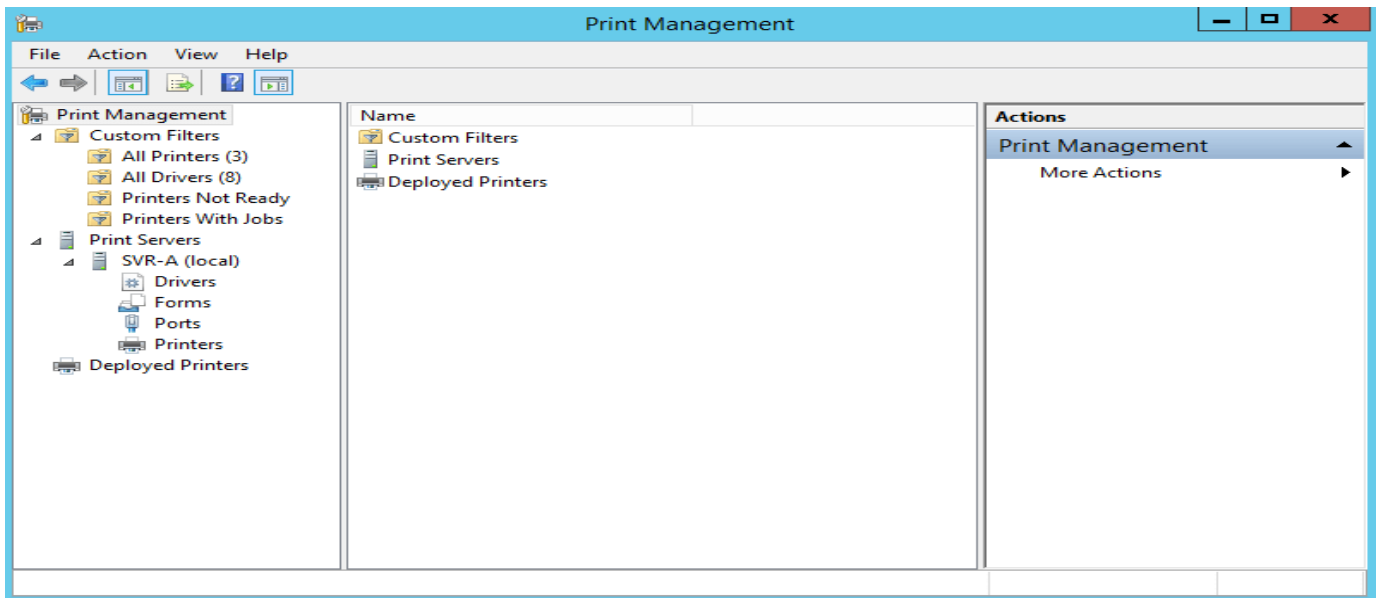
First of all we need to add some printers and drivers on the server and manage them.

Open Server Manager, click on **Tools** dropdown menu and select **Print Management** services.

Using this tool we can add and manage print services easily.



Server Manager



While Print Management tool is opened. Expand Custom Filters on the left pane to see the custom filters. You see four default filters:

All Printers: It shows the list of all printer connected to the domain from all print servers.

All Drivers: You can see a complete list of all drivers available for your clients through all the domain.

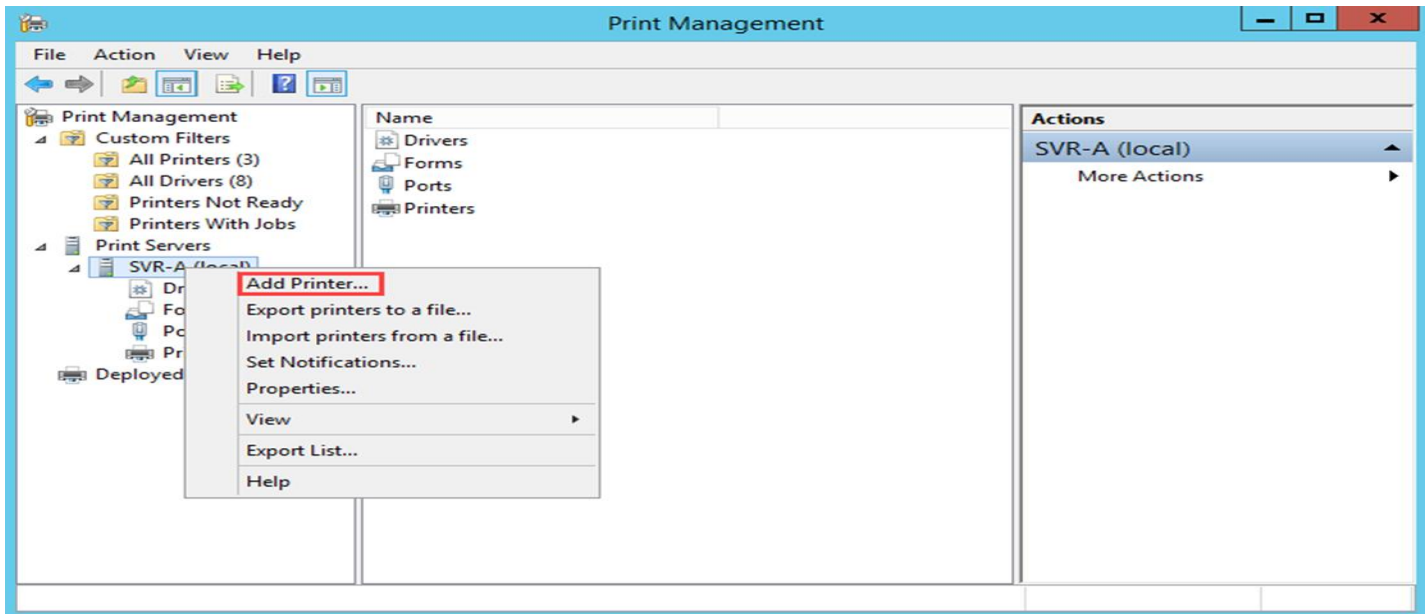
Printers Not Ready: It shows you list the servers which are not available to clients. They don't work, fix them.

Printers With Jobs: Shows the list of printers currently doing print jobs.

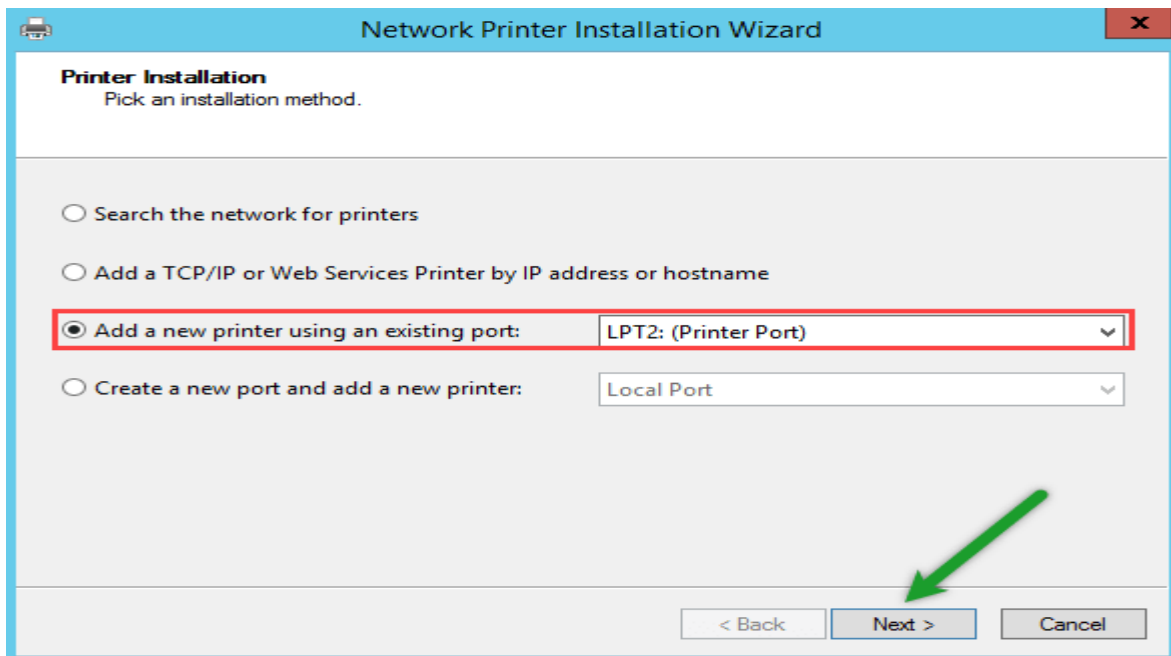
Below Custom Filters another option is visible by the name Print Servers. Expand it to see all the print server in your domain. You can add all print servers in the domain here for easy management. Just right-click on Print Servers and select Add Server and go on.

add printer

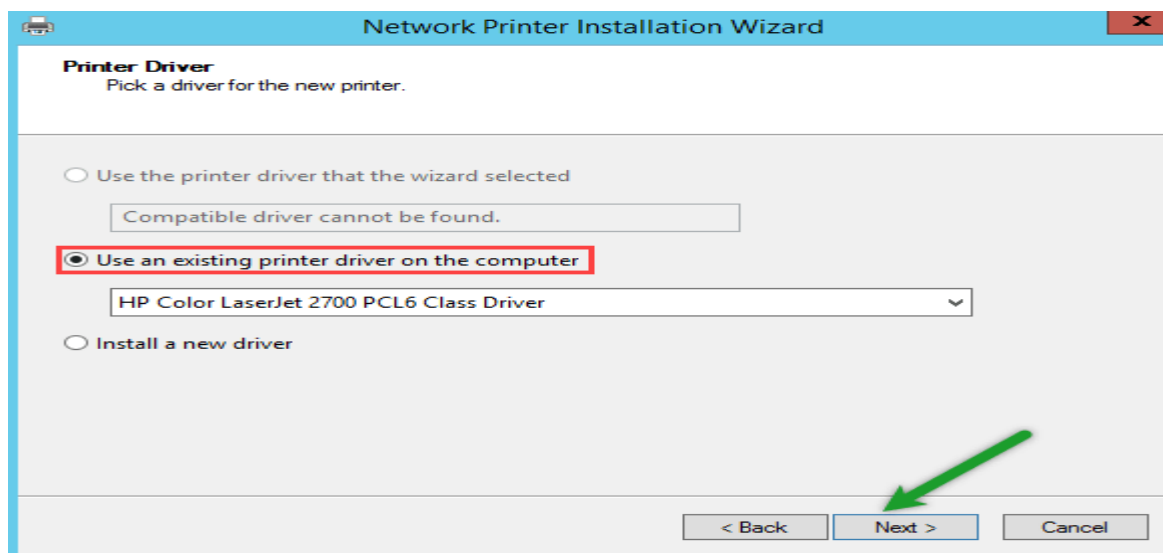
Print Management tool opened, expand Print Servers and right-click on the server and select Add Printer option.



In the Welcome page we've nothing to do so just click on Next button. In the Printer Installation page select the Add a new printer using an existing port. Elect a port and hit Next button..

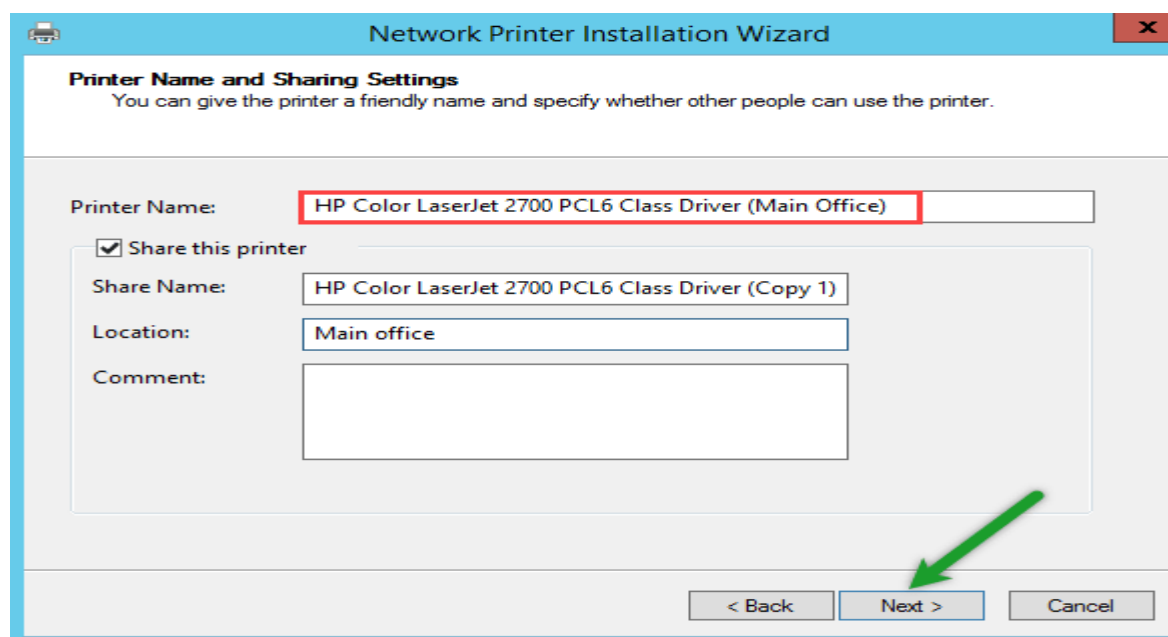


In the Printer Driver page select Use an existing printer driver on the computer option. From the drop-down list select a driver that matches your printer device manufacturer and model.



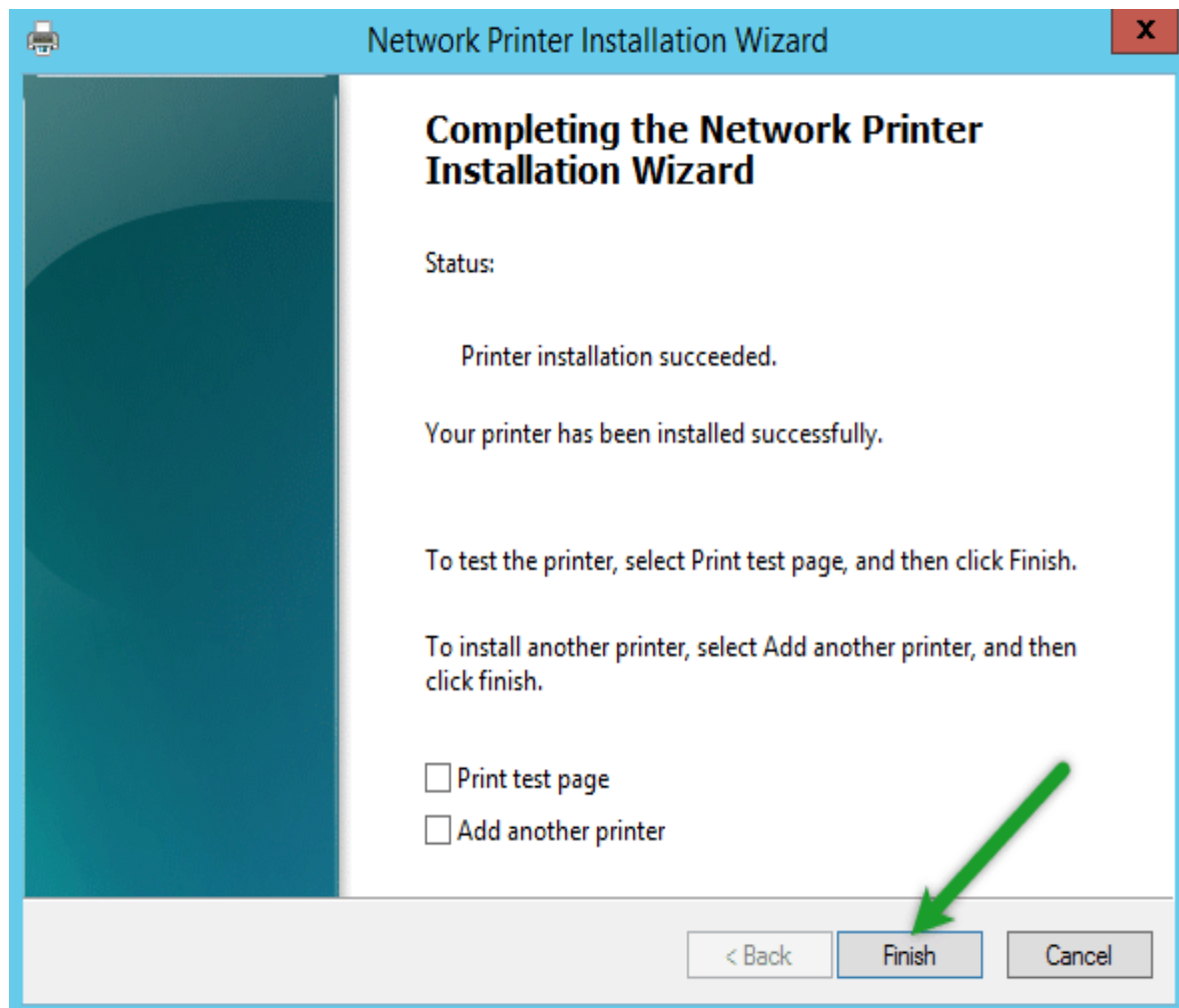
Use an existing printer driver

Now you need to type a name for the printer in the box shown in the picture below. Below the Printer Name you can also see another option: Share this printer. As a result you can choose a share name and location for the printer. If needed you can leave a comment for users guidance.



Printer Share Name and location

5. Finally we are done with adding printer on a server. Just click on Finish button to finish the wizard. While finished the wizard you can find the printer in All Printers option in the left pane. If you would like to print a test page selecting Print a test page at the bottom of the wizard also you can add another printer



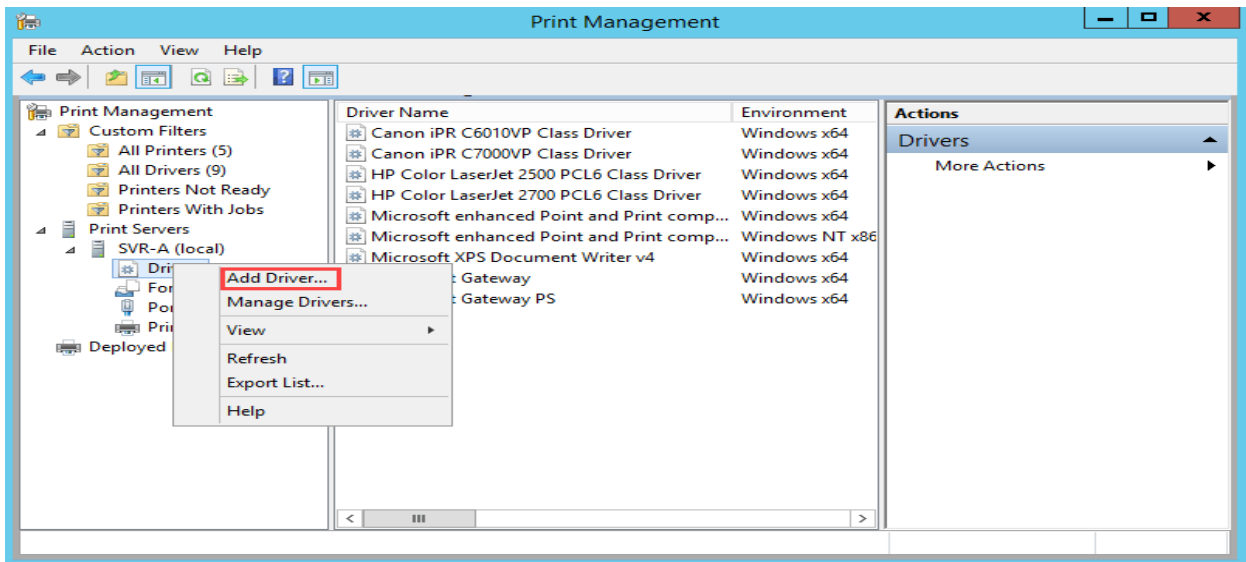
Finish the wizard

Add Driver

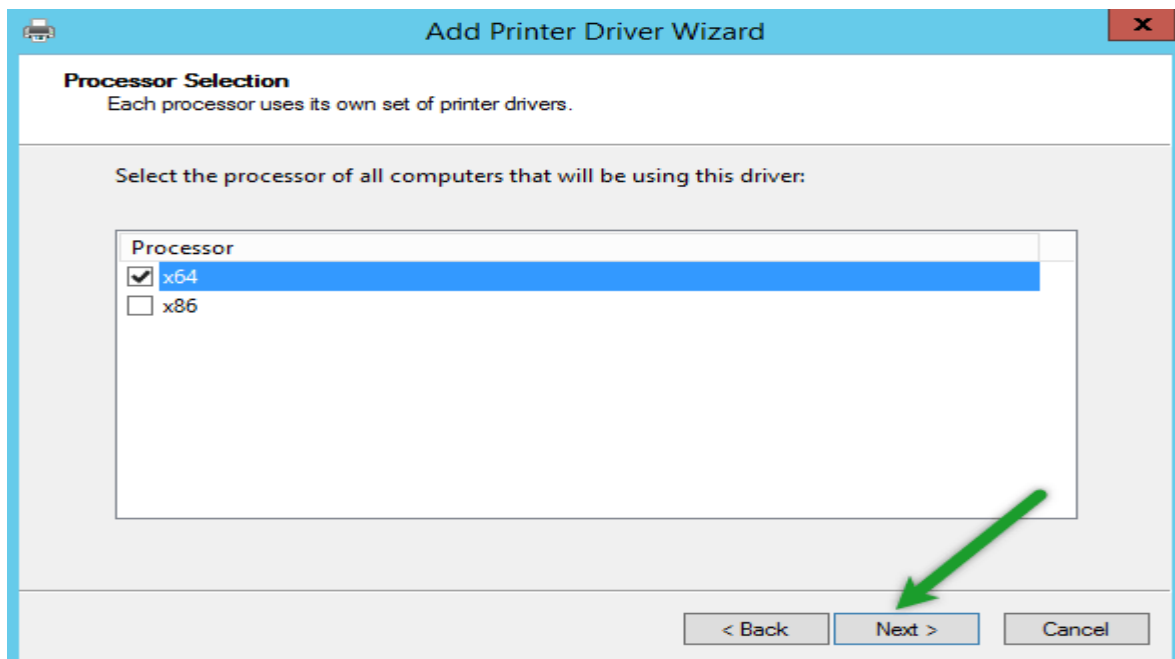
اختيار نوع الطابعة والشركة المصنعة ورقم الموديل

Maybe you need different kinds of drivers for client computers to use be able to use print device. So you need to have 32-bit and 64-bit drivers.

First of all you need to right-click on Drivers option below the server which you want to add driver to. Select the Add driver option.

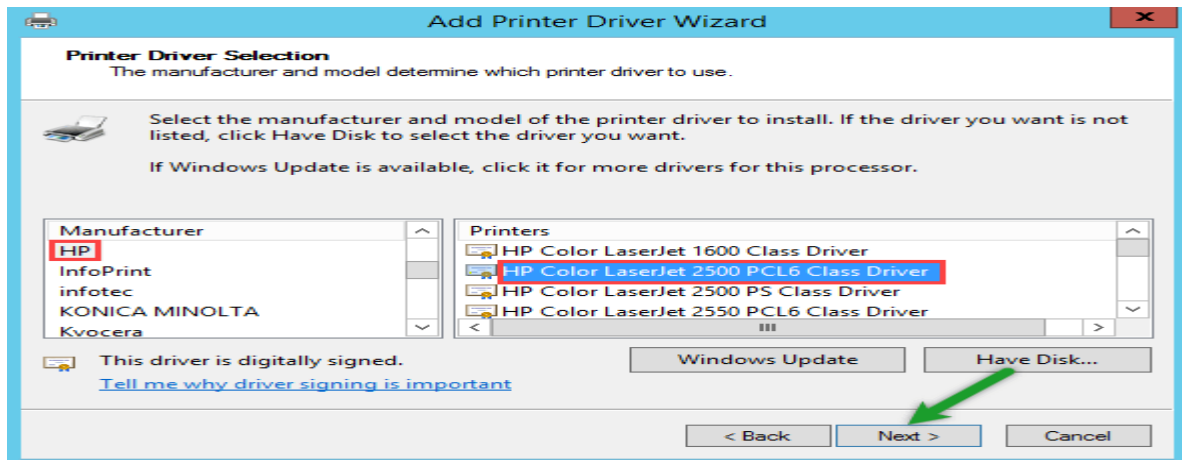


In the Welcome page we have nothing to do. In the Processor Selection page you need to specify which kind of processors do your clients use. You can one or both of the options and hit Next.



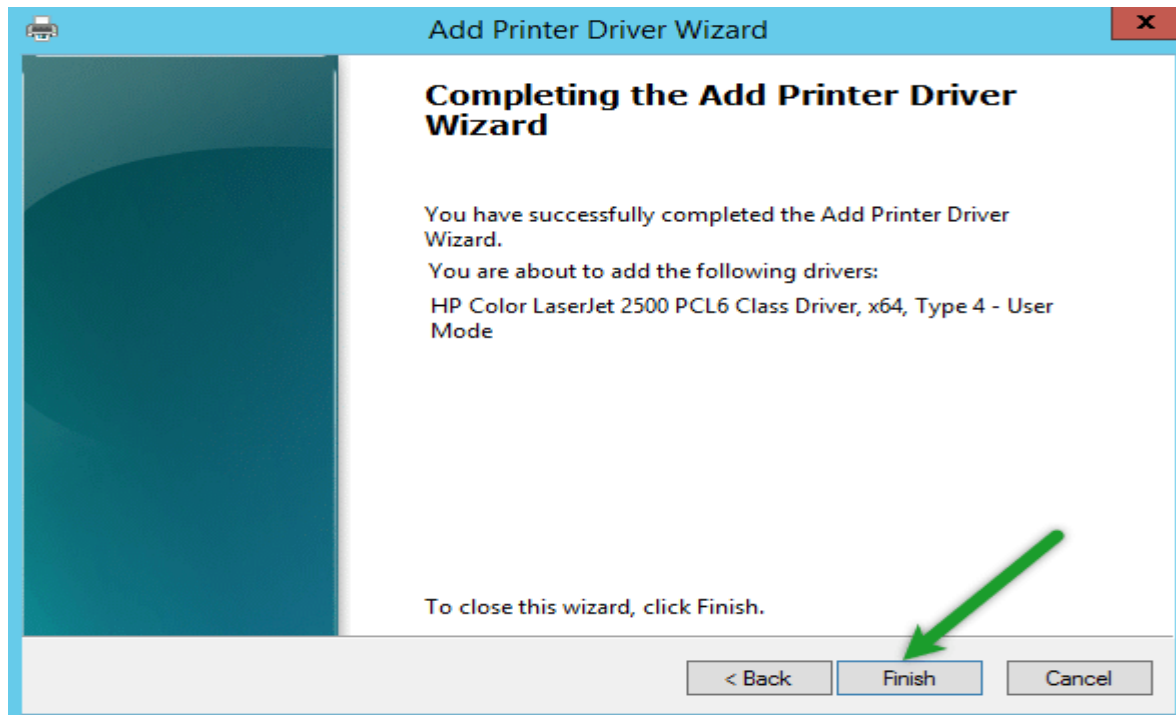
Processor selection

In the Printer Driver Selection page you need to specify two things. First of all you should specify your device's manufacturer. Secondly specify the printer model. In addition to these you have one more useful option. If you have driver on a disk, you can click on Have Disk button and find path of the source and add it.



Printer Driver Selection

We are done and the driver was added to the server. So click on Finish button due to finish.



18-Active Directory

يعتبر Active Directory أو Active Directory Domain Services أساس شبكات الدومين في مايكروسوفت ، وهو عبارة عن قاعدة بيانات لكل موارد الشبكة Resources والخدمات Services والمستخدمين Users

بحيث أنك تستطيع من خلاله عمل تحكم مركزي Central Administration بكل هذه الأجزاء في الشبكة وعمل Domains و بنية الشركة الهيكلية Hierarchical organization structure وغيرها ، والتحكم بالصلاحيات ال authorization and authentication .

إذا حملت النظام Windows Server دون تثبيت اي Rule عليه ، وعملت له انضمام للشبكة Join فيسمى Member Server، اما إذا حملت نظام التشغيل فقط فيسمى standalone Sever.

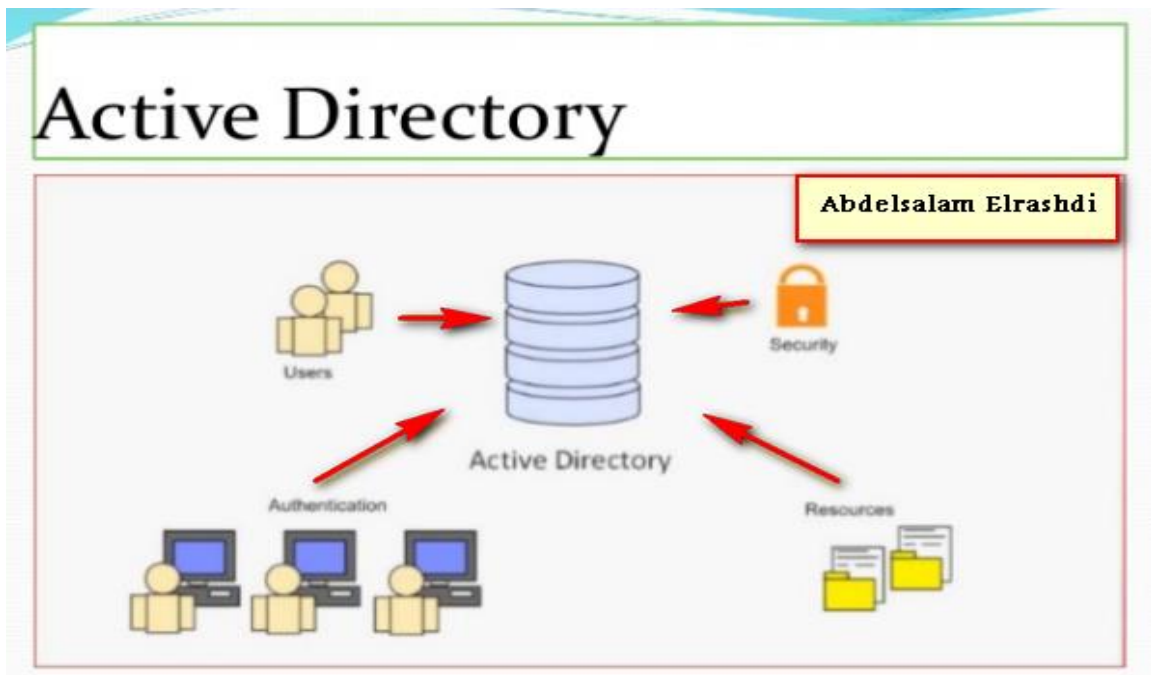
إذا Domain Controller يعتبر Server يخزن فيه قاعدة بيانات ال Active Directory وتحفظ في ملف يسمى ntds.nit ”

اما المجال Domain فهو عبارته عن اسم منطقي غير ملموس يحتوي بداخله على جميع العناصر الرئيسية مثل active directory, domain controller, ou, users, computers, printers, folders, ...etc.

وللتوضيح أكثر نتخيل ان الدومين هو دولة ليبيا على سبيل المثال والمساحة الجغرافية الحقيقية التي توجد بها ليبيا هي domain controller والسجل المدني الذي يحتوي علي المعلومات الخاصة بالليبيين والاجانب الموجودين داخل ليبيا هو Active directory.

Active Directory is essential to any Microsoft network built on the client-server network model—it allows you to have a central sever called a Domain Controller (DC) that does authentication for your entire network.

Instead of people logging on to the local machines they authenticate against your D Active Directory stores data as objects. An object is a single element, such as a user, group, application or device, such as a printer. Objects are normally defined as either resources -- such as printers or computers -- or security principals -- such as users or groups.

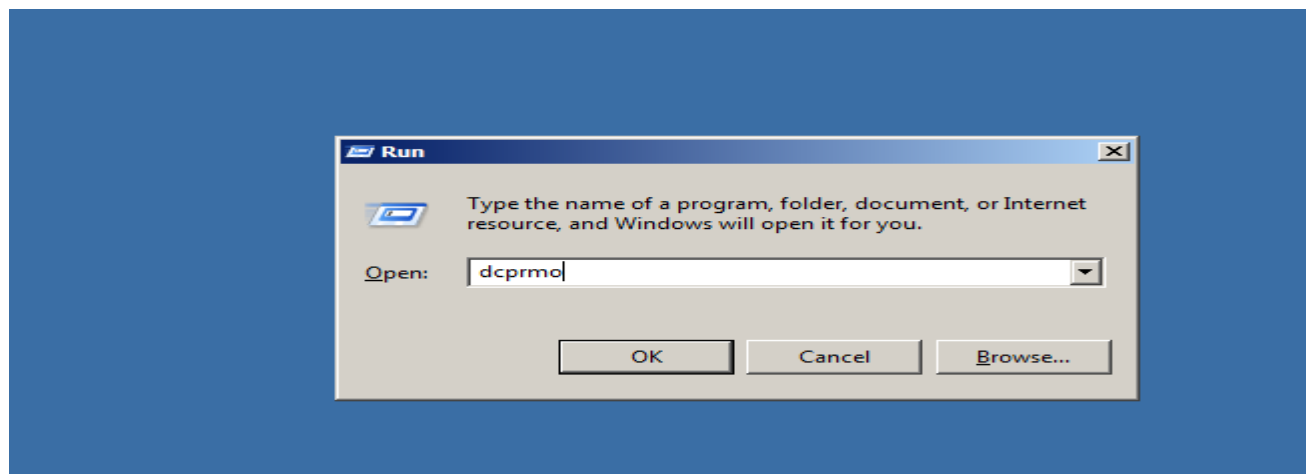


18.1- Install active directory on windows server 2008 r2

You have two ways to install the active directory

first one :-

open the run then type dcpromo



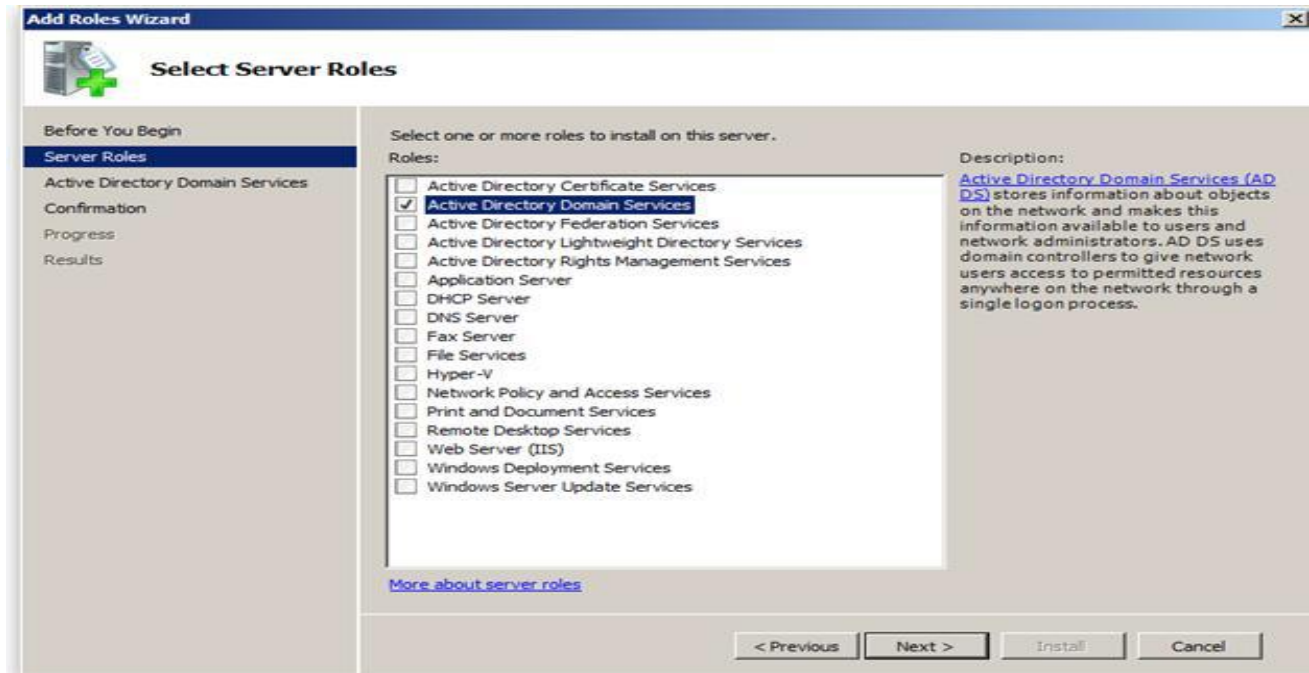
Second one :- Open Server Manager and click on roles, this will

bring up the Roles Summary on the right hand side where you can click on the Add Roles link.

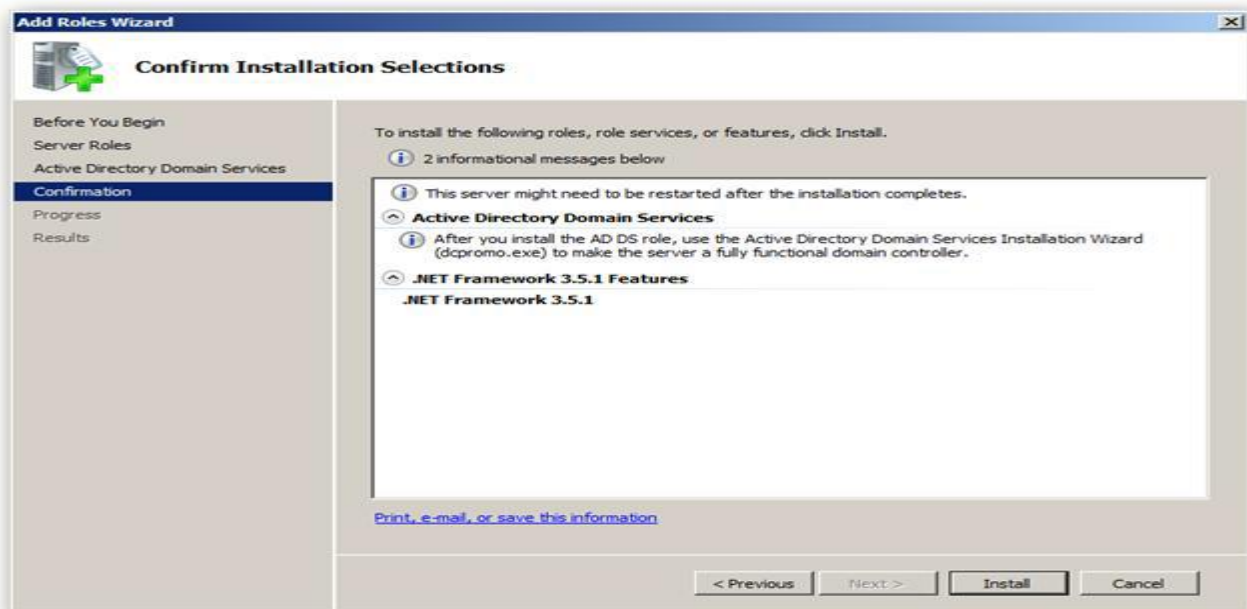
hoice image place



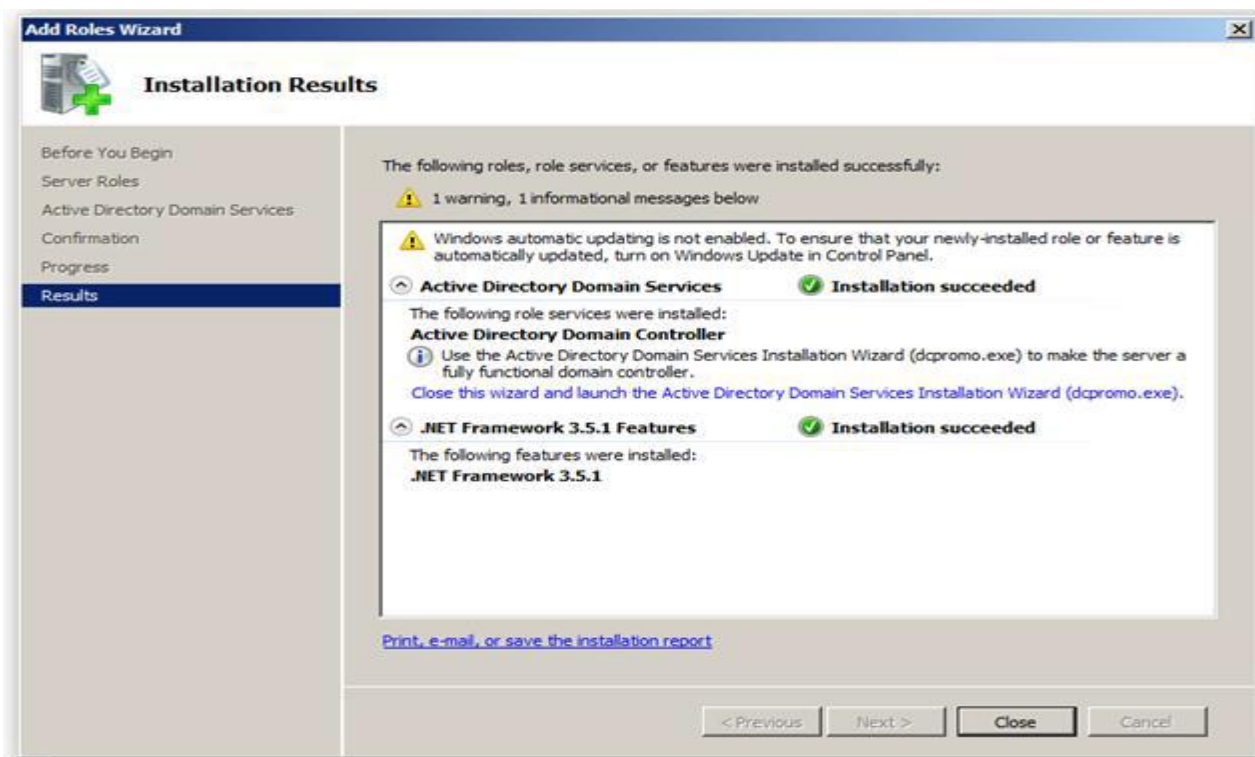
This will bring up the Add Roles Wizard where you can click on next to see a list of available Roles. Select Active Directory Domain Services from the list, you will be told that you need to add some features, click on the Add Required Features button and click next to move on.



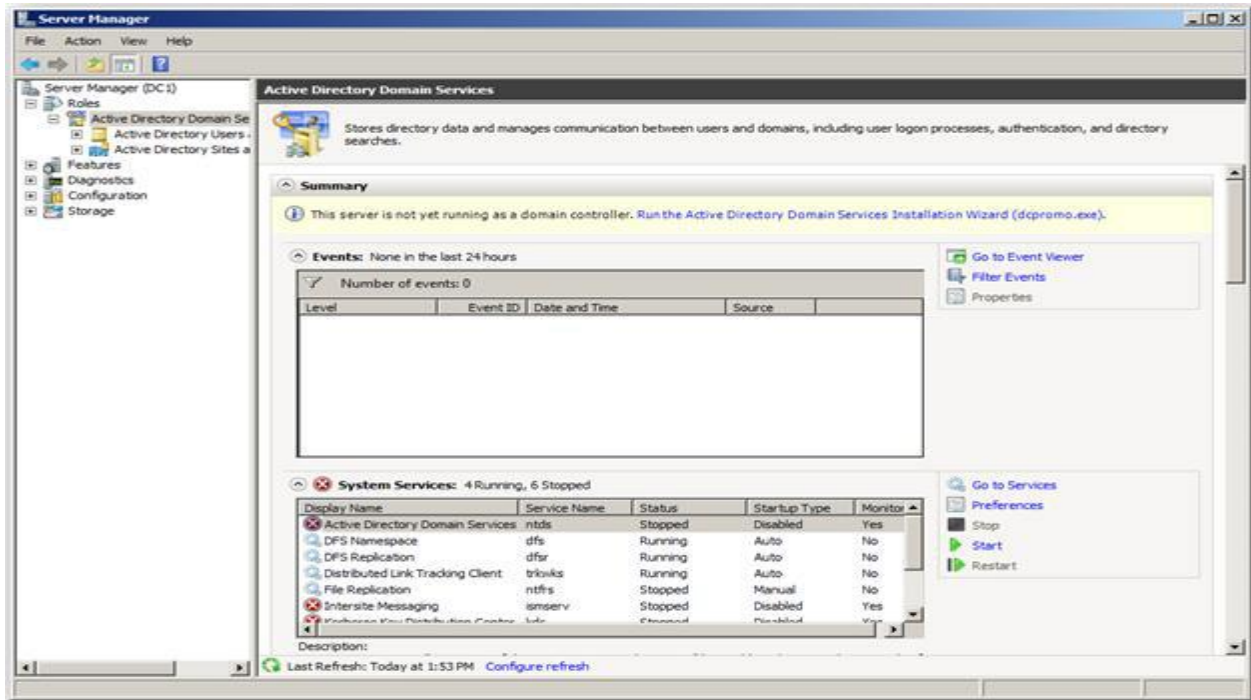
A brief introduction to Active Directory will be displayed as well as a few links to additional resources, you can just click next to skip past here and click install to start installing the binaries for Active Directory.



When the installation is finished you will be shown a success message, just click close



Open up Server Manager, expand Roles and click on Active Directory Domain Services. On the right hand side click on the Run the Active Directory Domain Services Installation Wizard (dcpromo.exe) link.

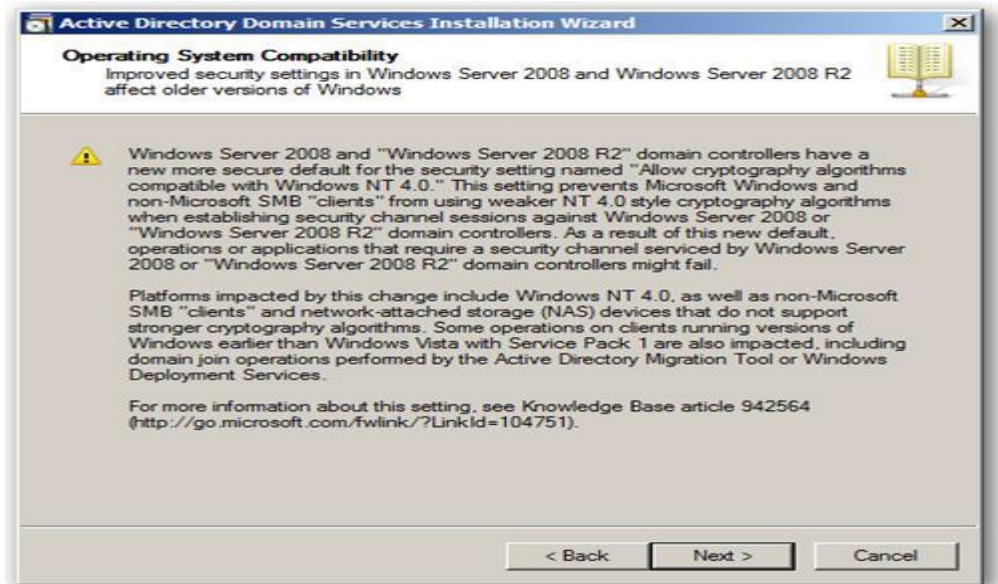


This will kick off another wizard, this time to configure the settings for your domain, click next to continue.

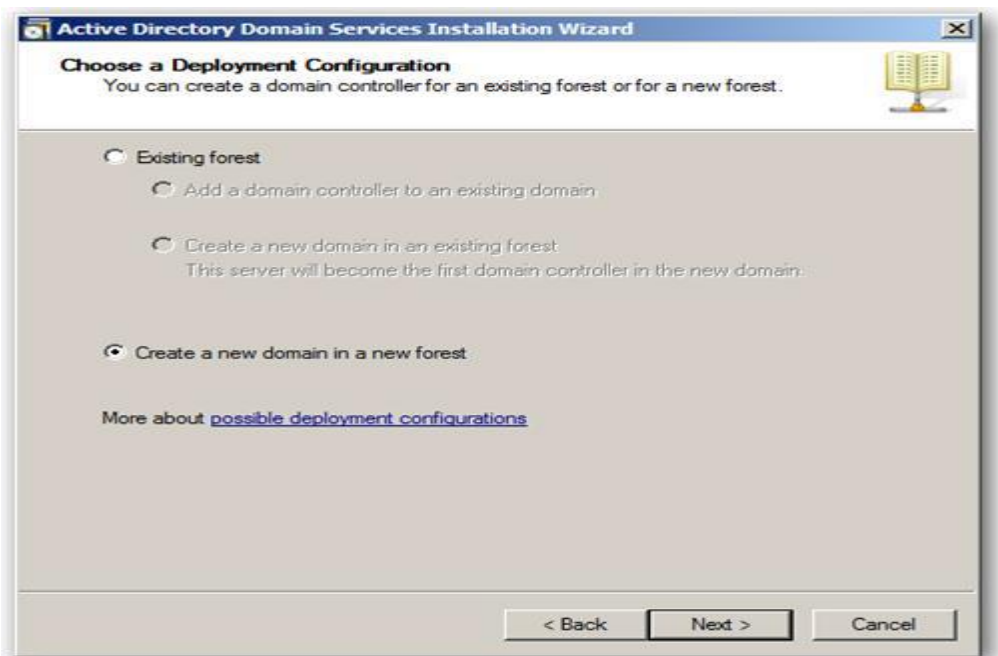


The message that is shown now relates to older clients that do

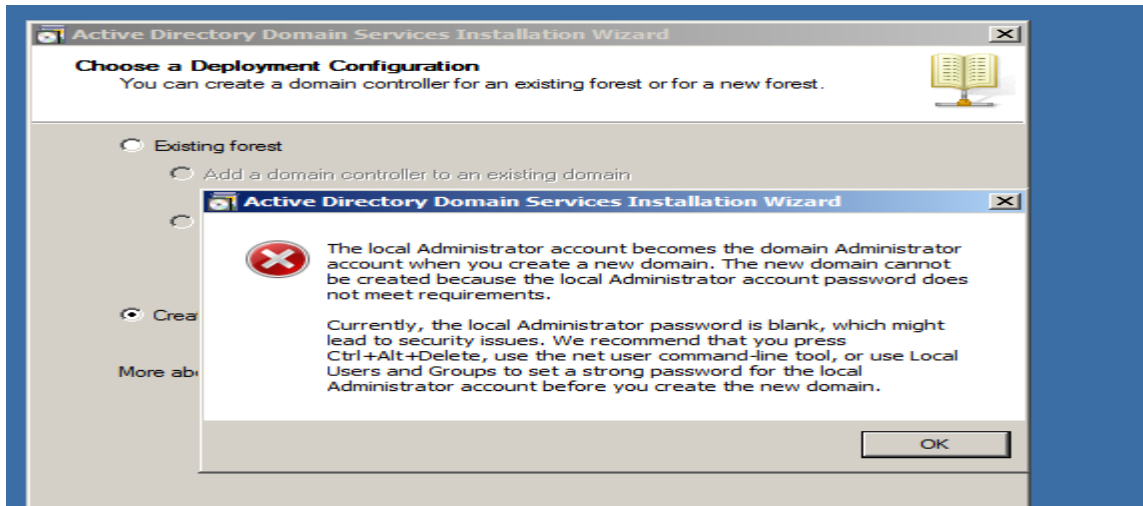
not support the new cryptographic algorithms supported by
Server 2008 R2, these are used by default in Server 2008 R2,
click next to move on.



Choose to create a new domain in a new forest.



This message will appear if your username
(administrator) not have complexity password



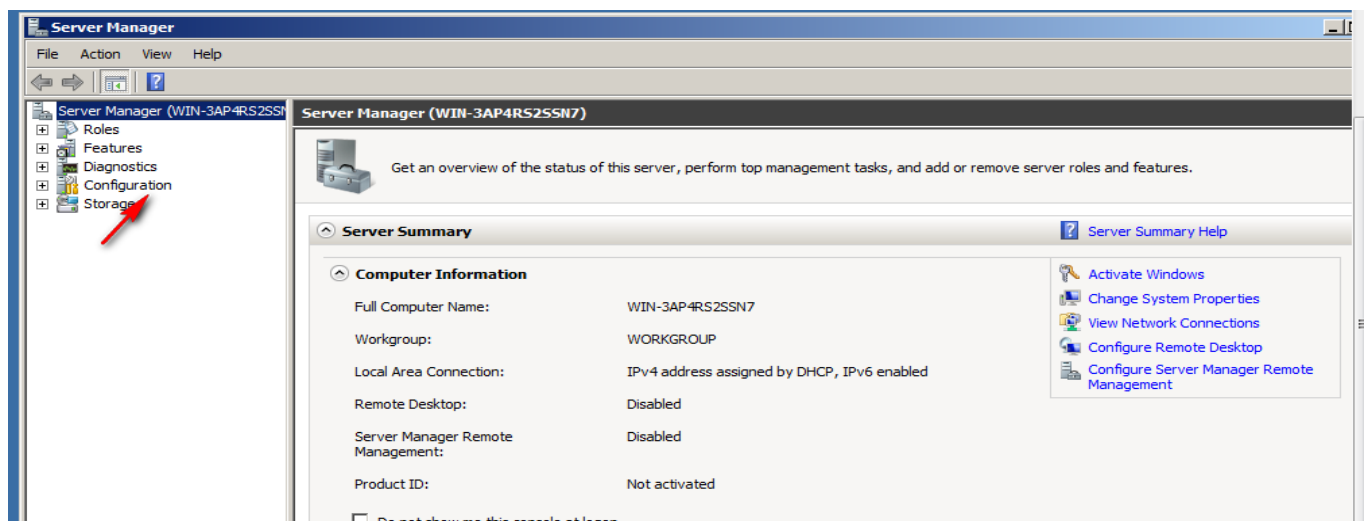
الرسالة السابقة تظهر عندما لا يوجد باسورد معقد يحتوي علي حروف ورموز وارقام للادمين

Administrator

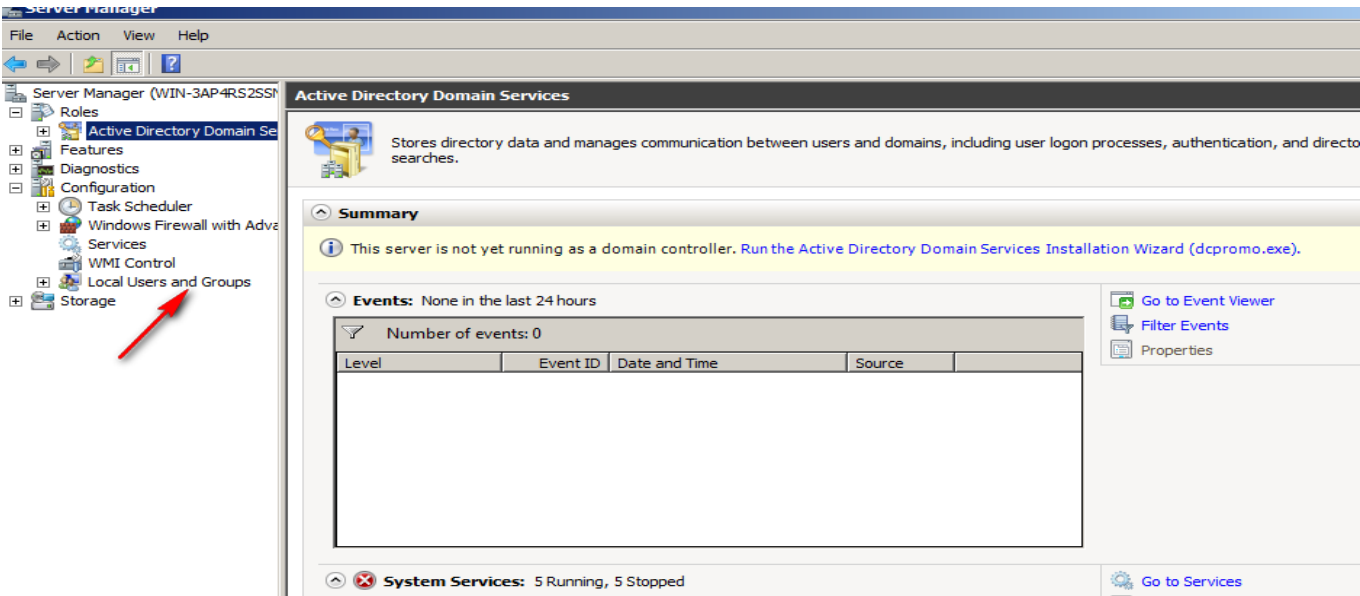
ولعمل باسورد معقد للادمين يجب علينا اتباع الاتي:

Open server manager

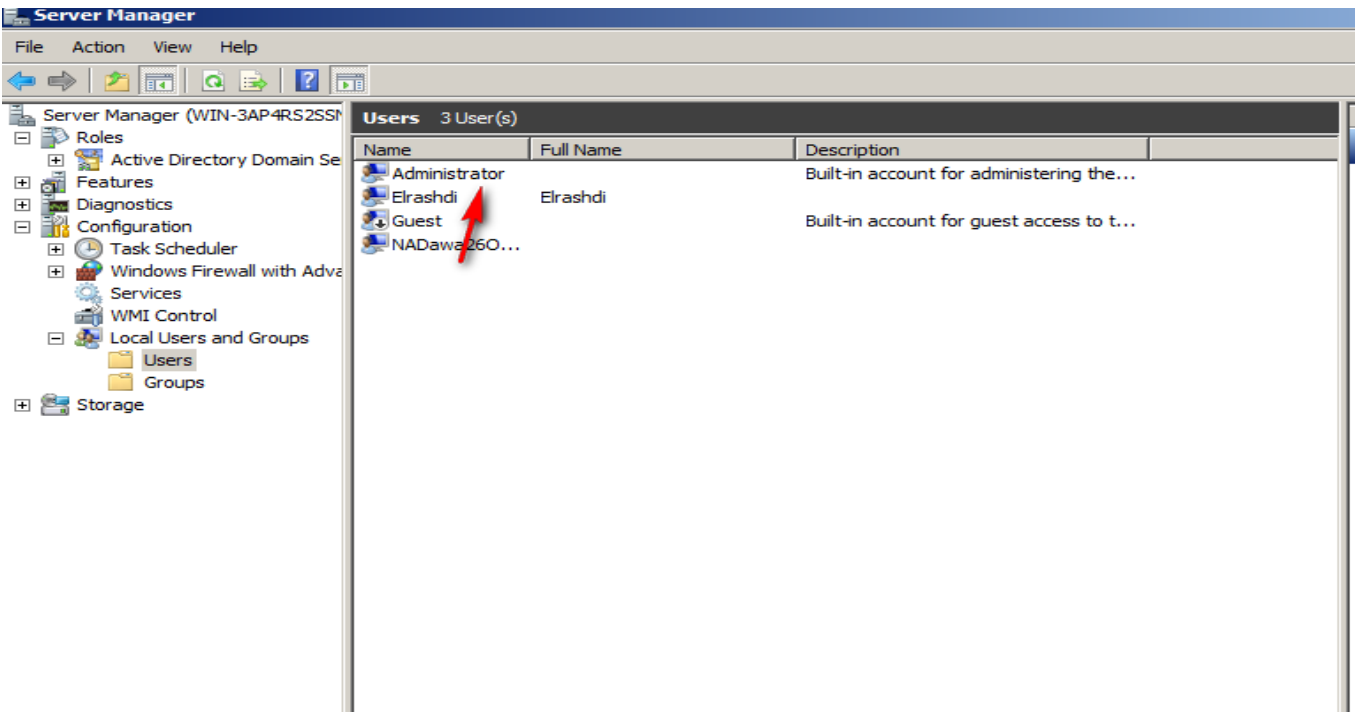
Manage computer

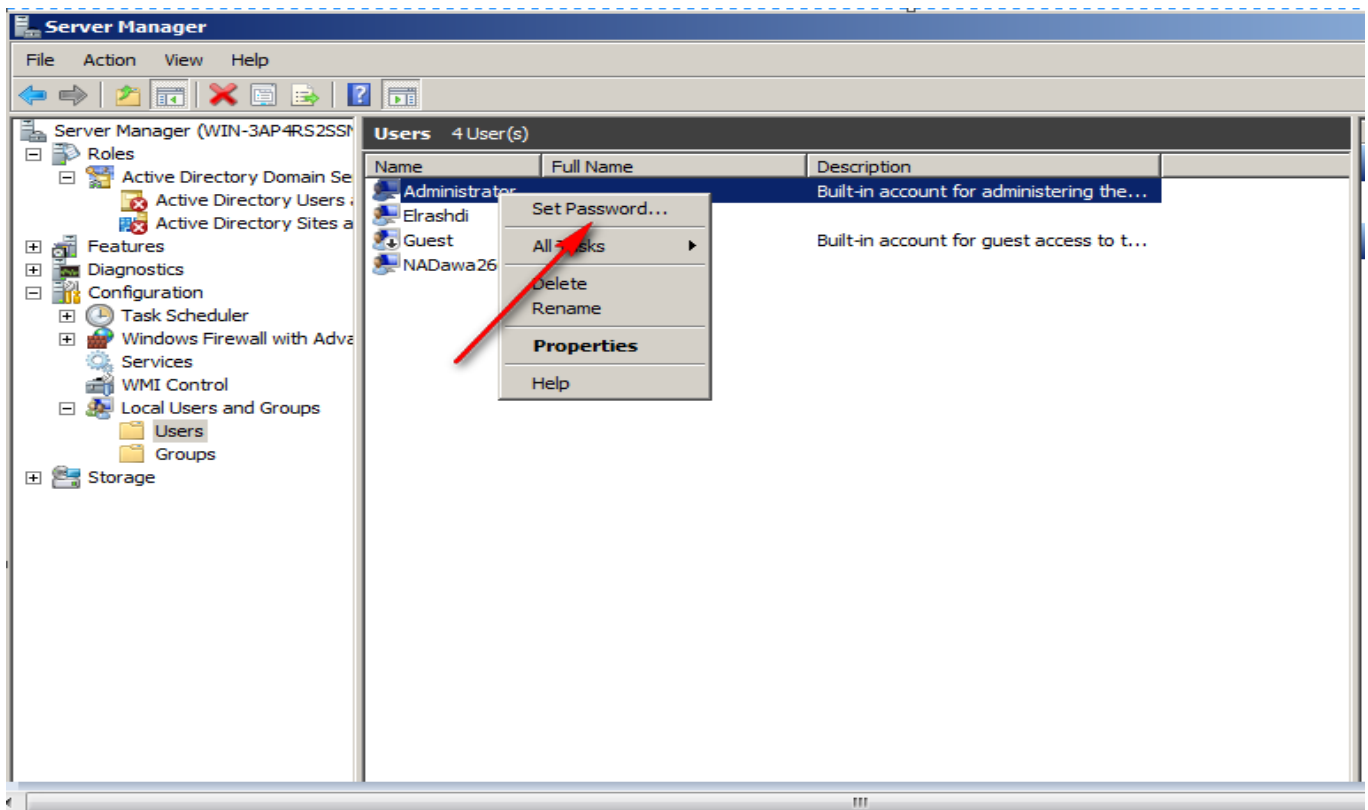


Create users

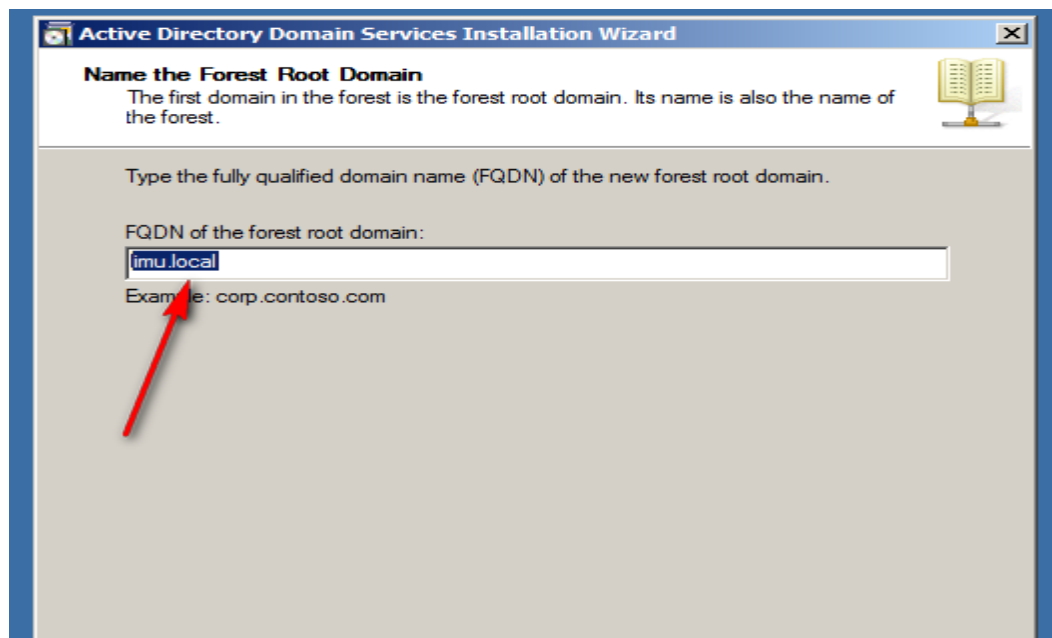


Create users

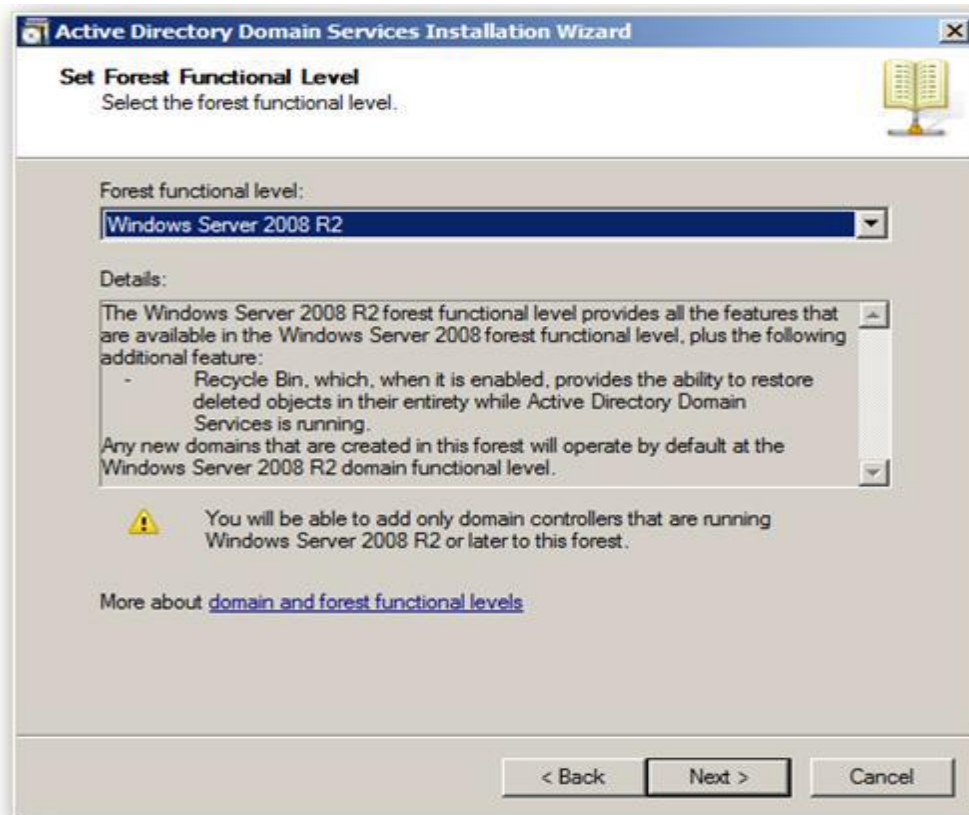




Now you can name your domain, we will be using a limu.local domain



Since this is the first DC in our domain we can change our forest functional level to Server 2008R2.

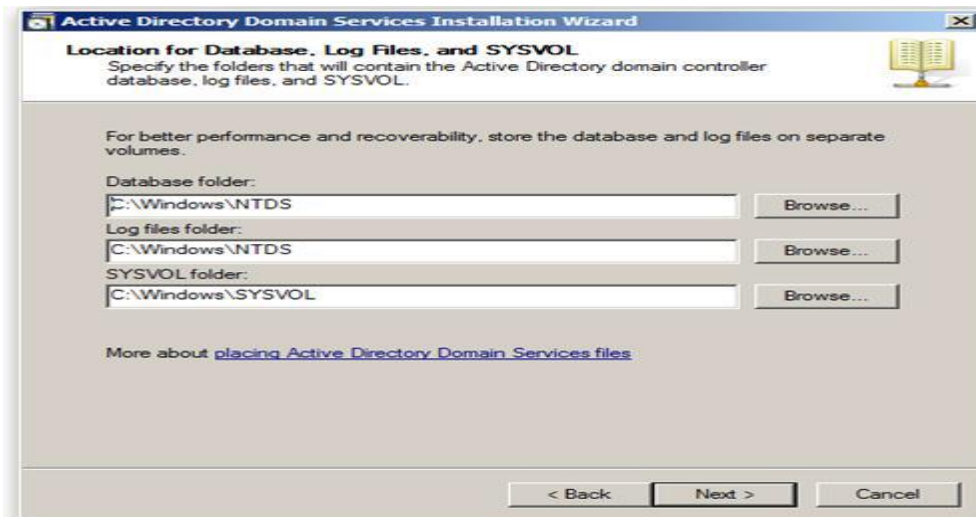


We want to include DNS in our installation as this will allow us to have an AD Integrated DNS Zone, when you click next you will be prompted with a message just click yes to continue.

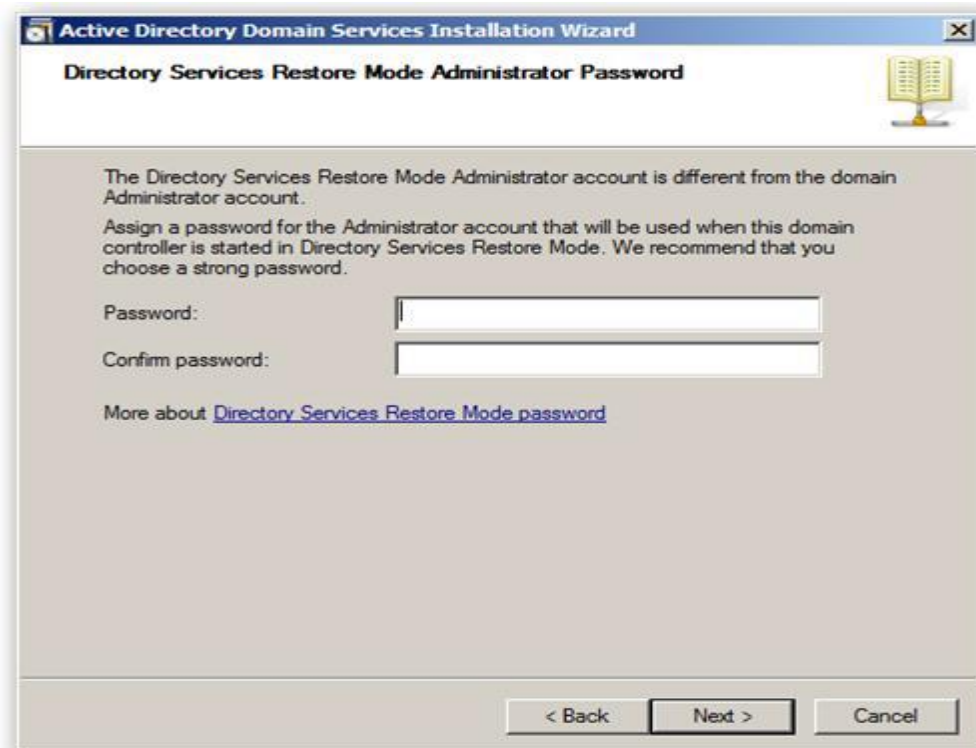


you will need to choose a place to store log files, it is a best practice to store the database and SYSVOL folder on one drive and the log files on a separate

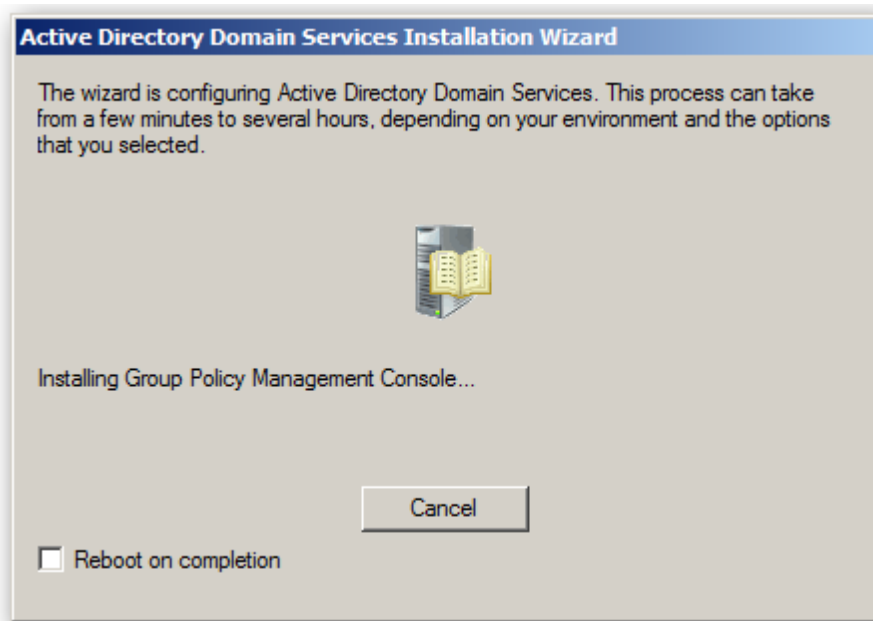
drive, but since this is in a lab environment I will just leave them all on the same drive



Choose a STRONG Active Directory Restore Mode Password and click next twice to kick off the Configuration



You will be able to see what components are
being installed by looking in the following box



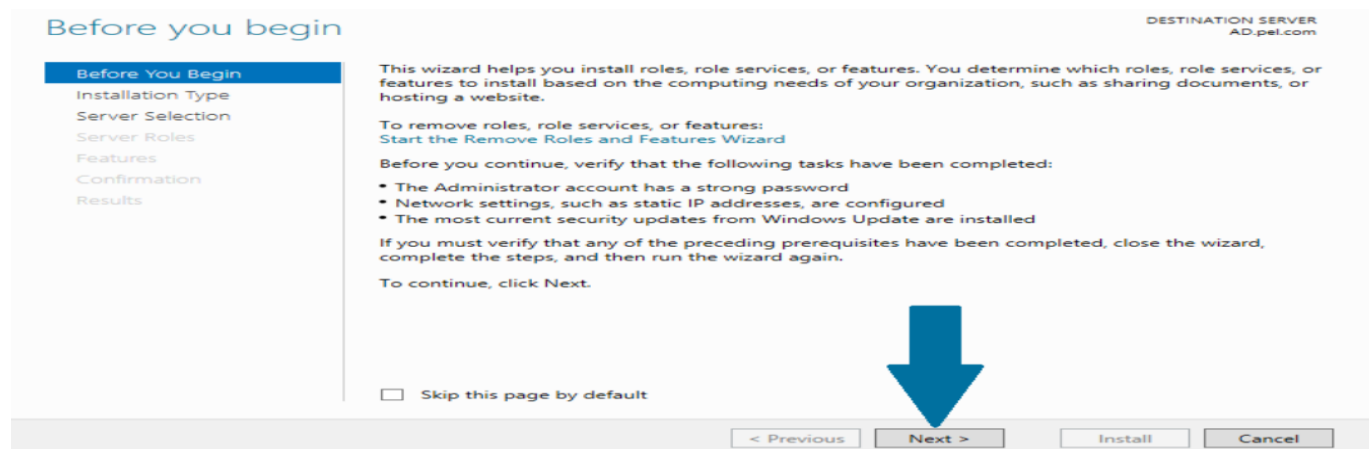
When its done you will be notified and required to reboot your PC.



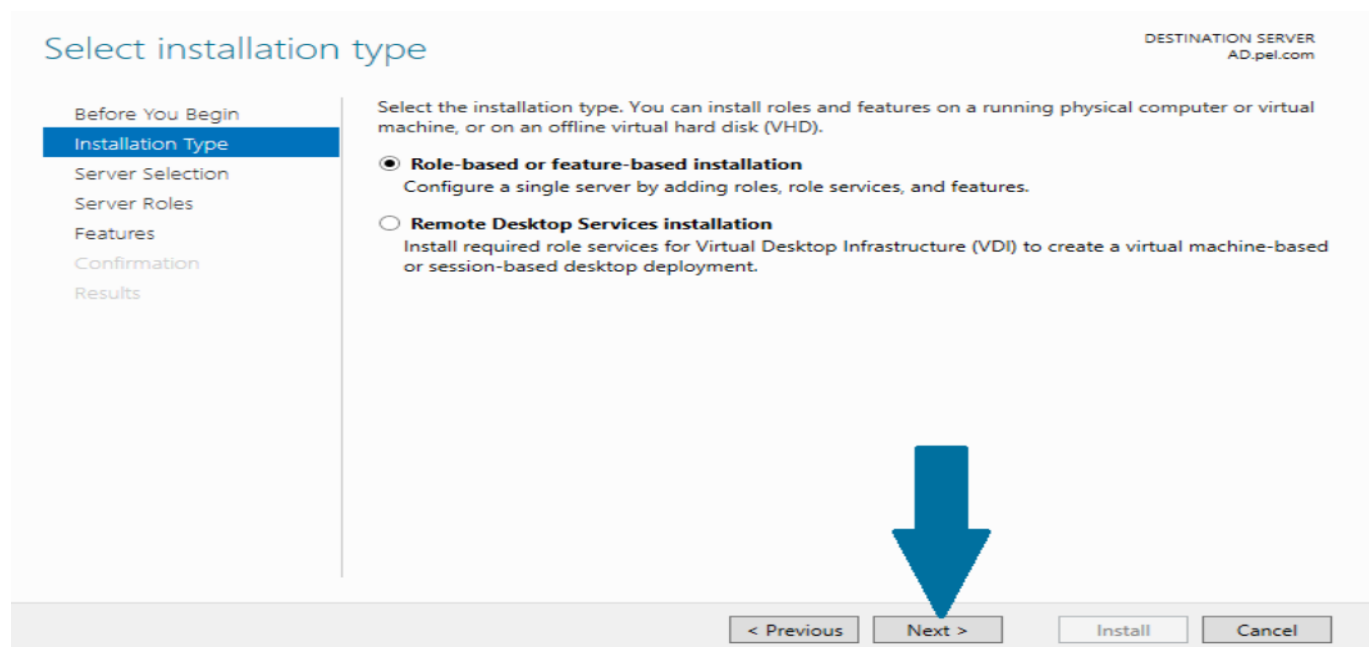
18.2- Active directory on windows server 2012

start "Server Manager" Choose "Add roles and features" Click through the wizard until "Features"

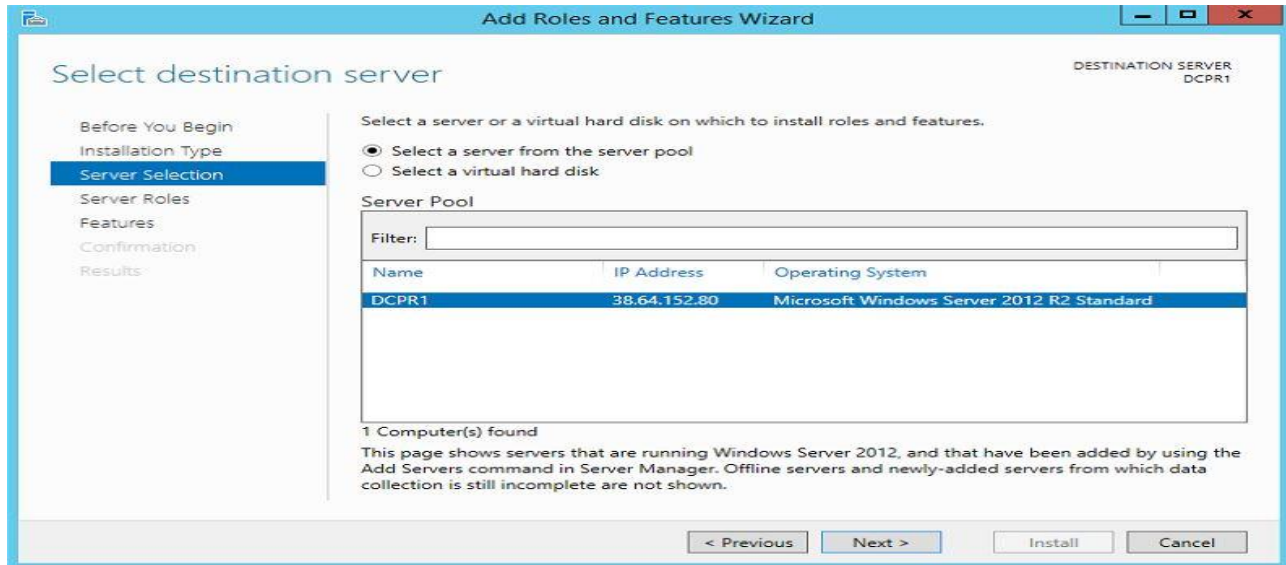
Go to "Remote Serer Administration Tools" and expand it Select "AD DS and AD LDS Tools"



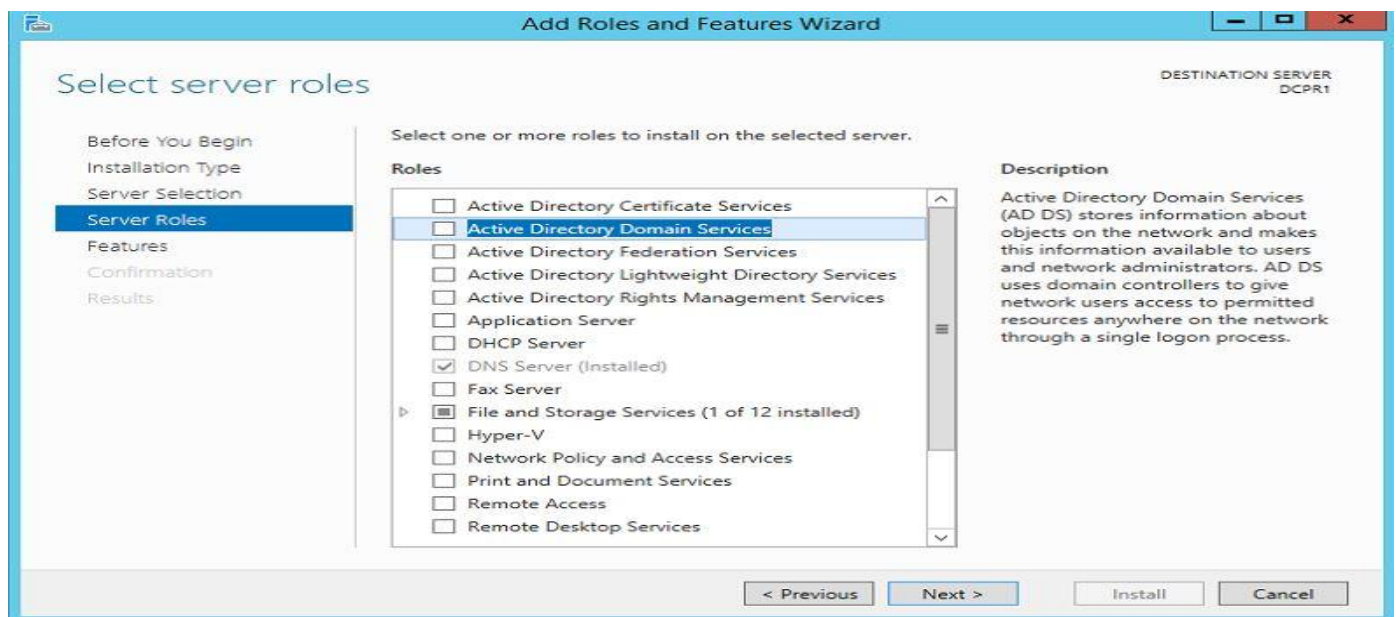
In next window keep "Role-based or feature-based installation" default selection and click on next.



In the next window we can select which server to install the role. In our case it will be local, so keep the default selection and click on next.



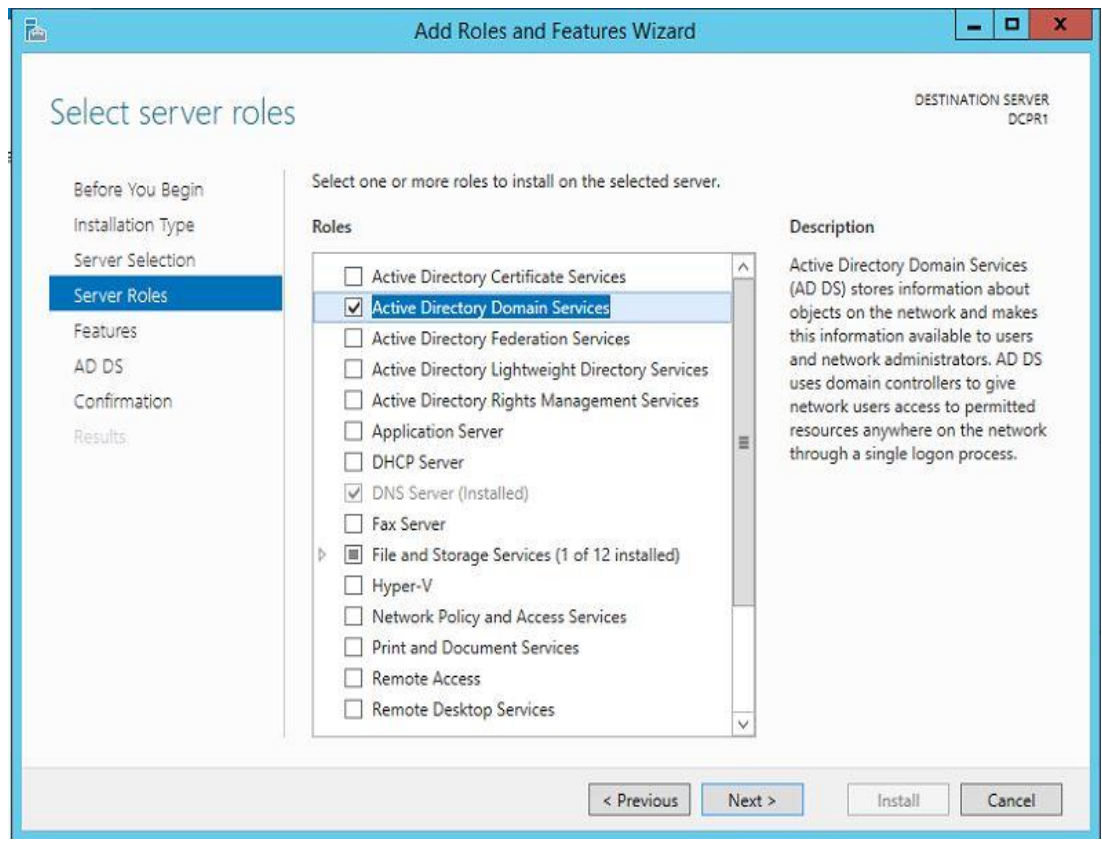
In the next window it gives an option to select the roles. Select and click on the tick box "Active Directory Domain Services"



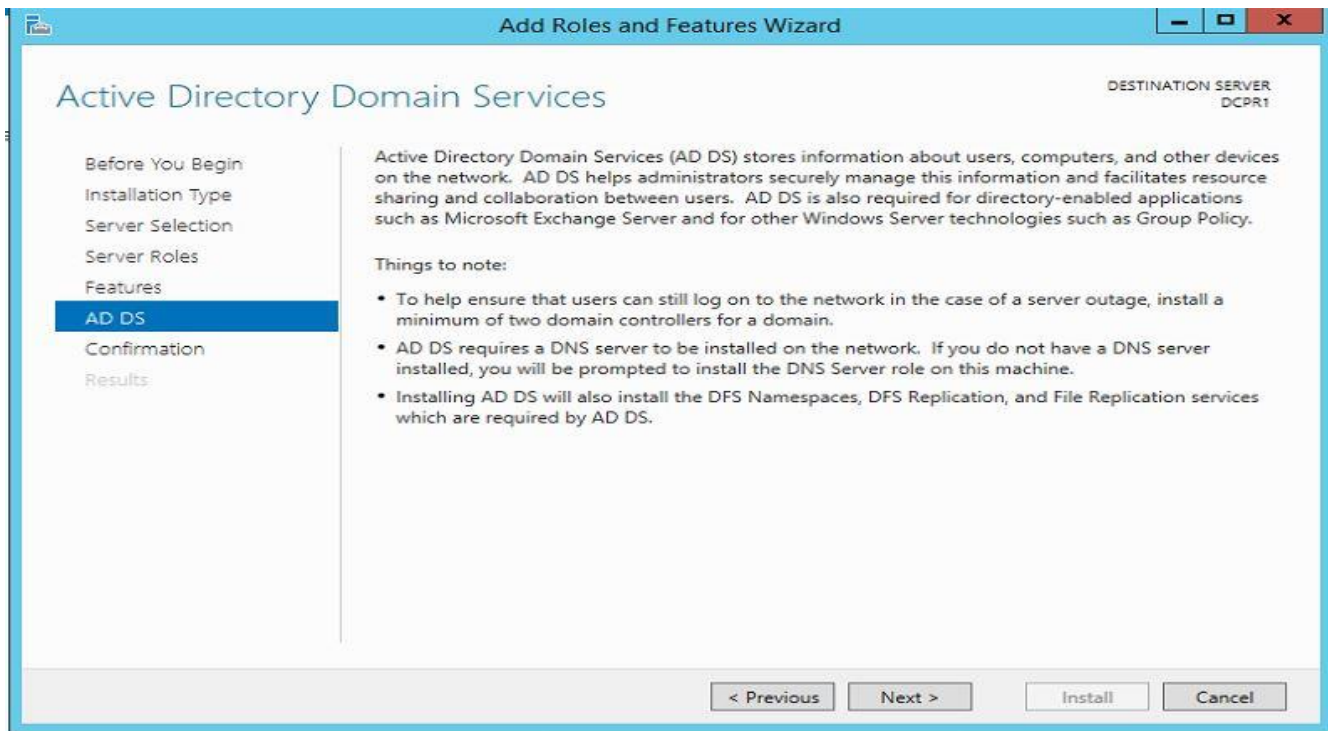
then it will prompt window to indicate the additional feature installations related to selected role.
click on "Add Features" to continue.



Then in next window click on next to continue



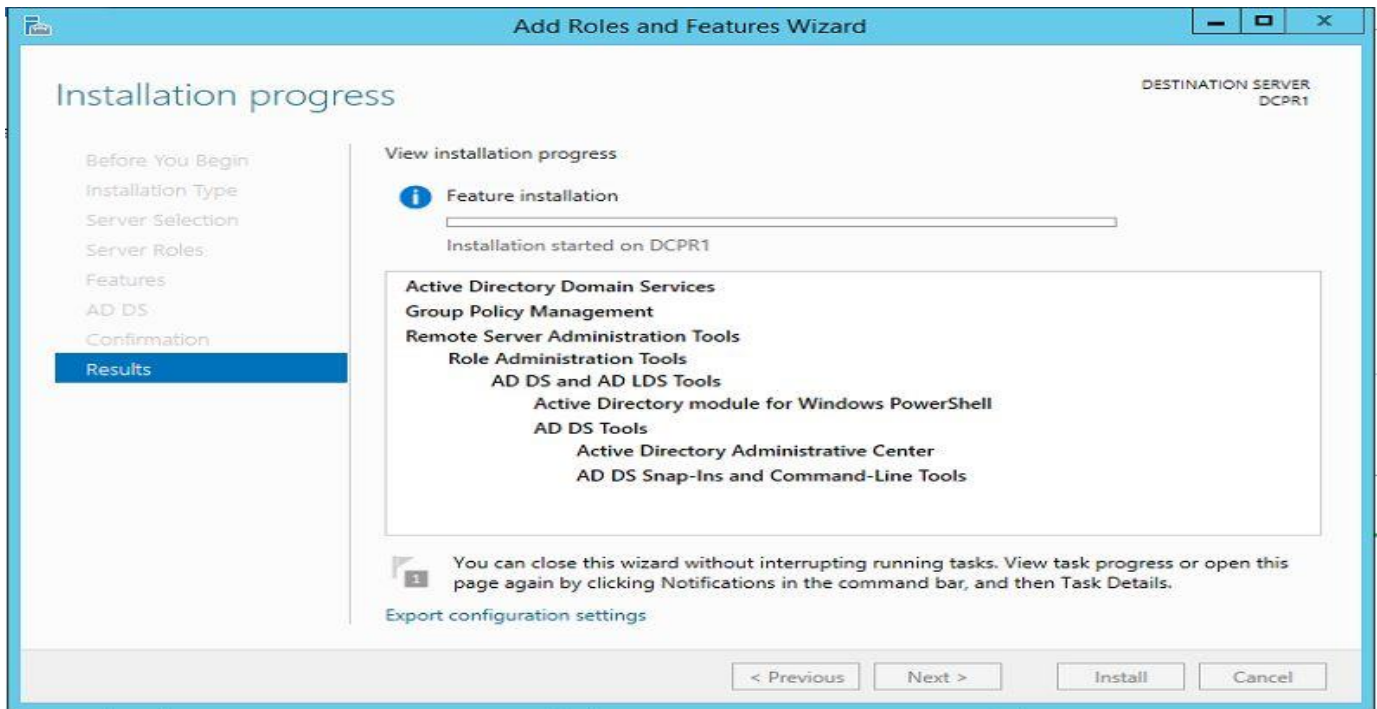
In next window it give brief description about the AD service. click on next to continue.



In next window it gives brief about the installation. click on "install" to start the installation.

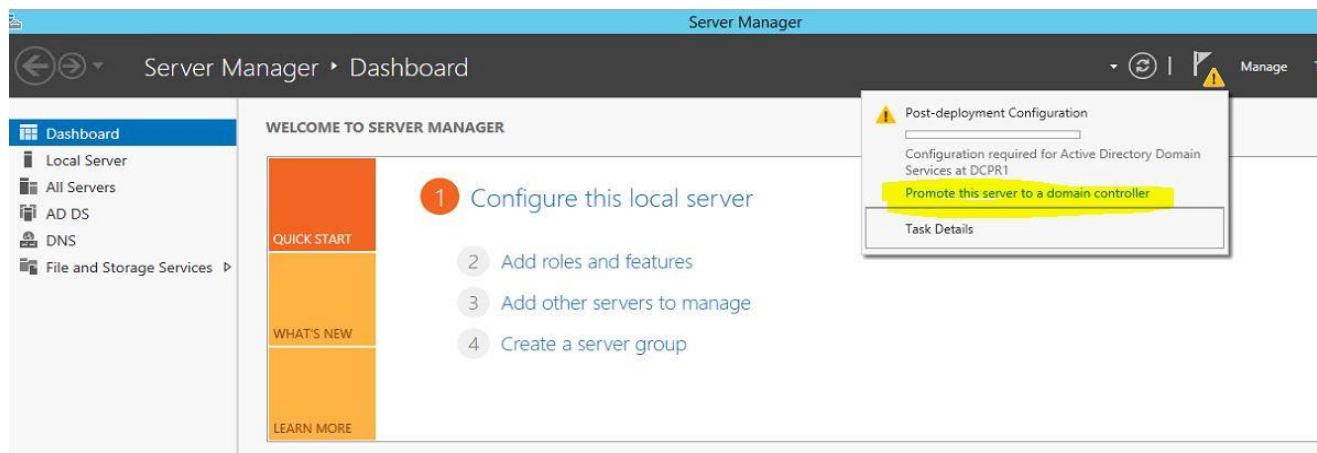


In next window it will begins the service install and we have to wait till it finish.

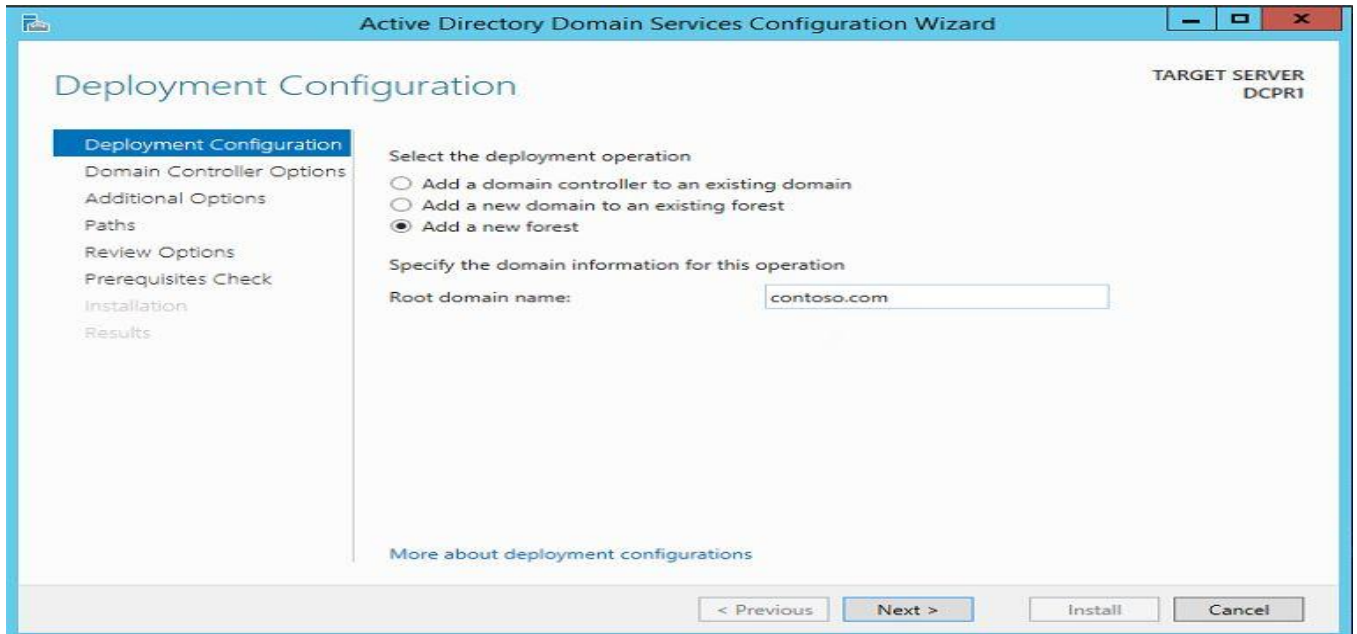


Once it finish click on "close" to exit from the wizard. then next step is to reboot the server to complete the installation

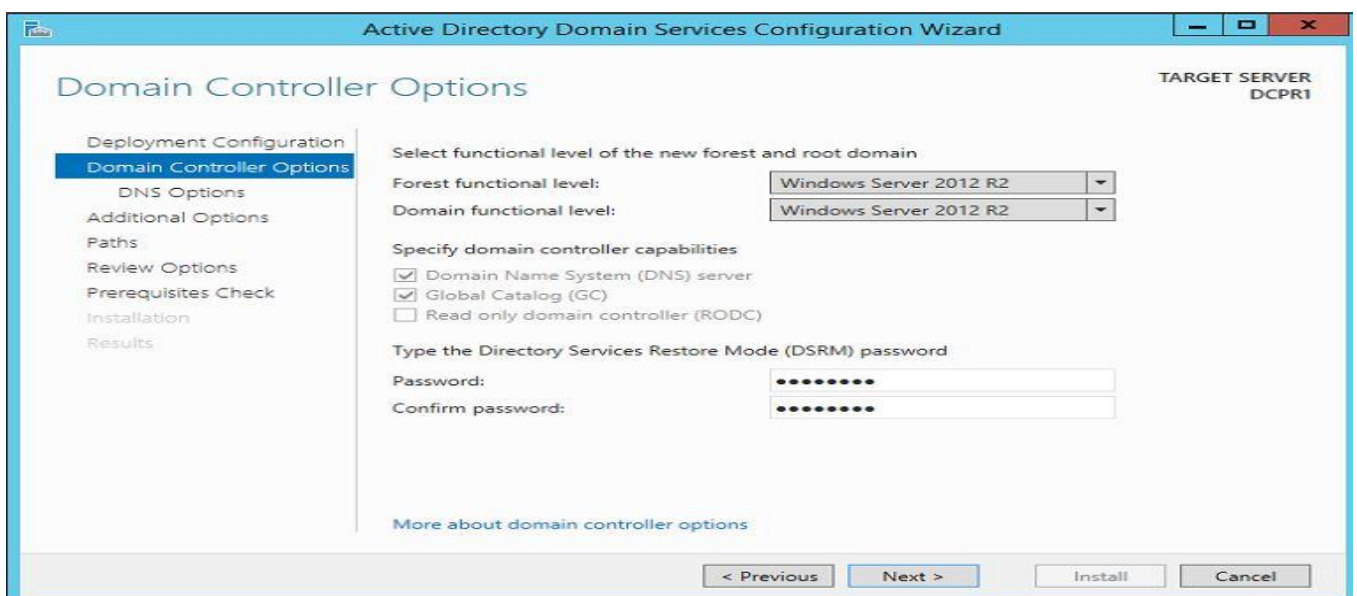
After that completes we need to start on the DC setup. to start that open the "Server Manager" and click Task flag on right hand corner. then it will list option as below picture. click on "promote this server to a domain controller" option (highlighted with yellow in picture)



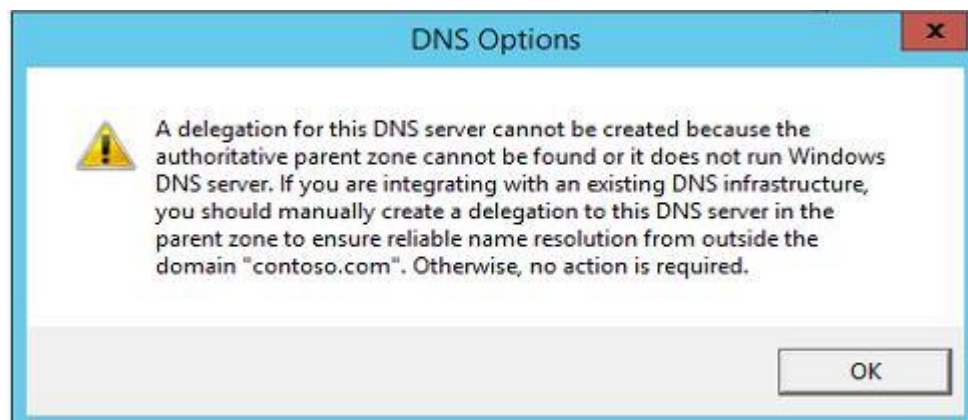
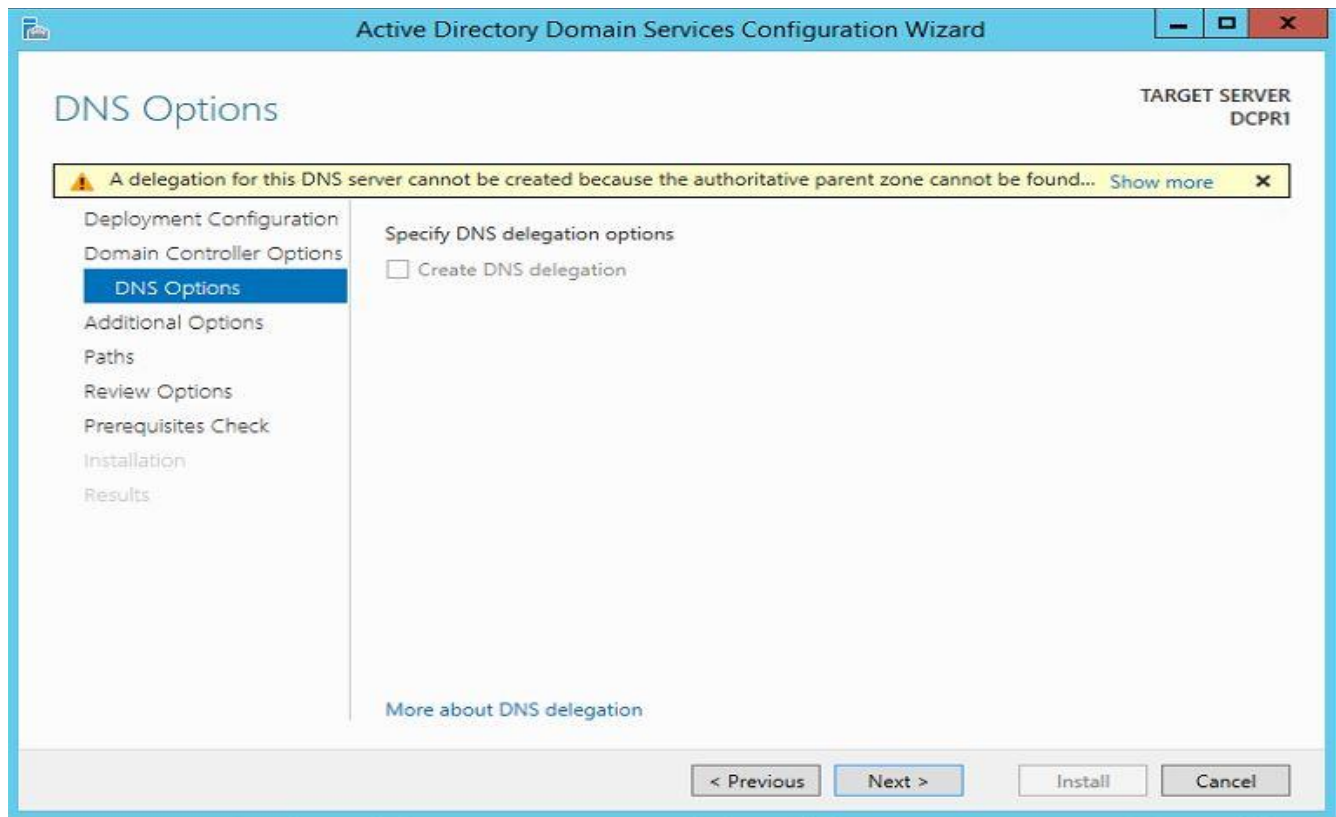
Then it starts the DCPROMO wizard. on the first window since its going to be new forest i have selected option "Add a new forest" and i typed the domain name "contoso.com" which i will be using on the forest. once fill the info click on "next" to continue.



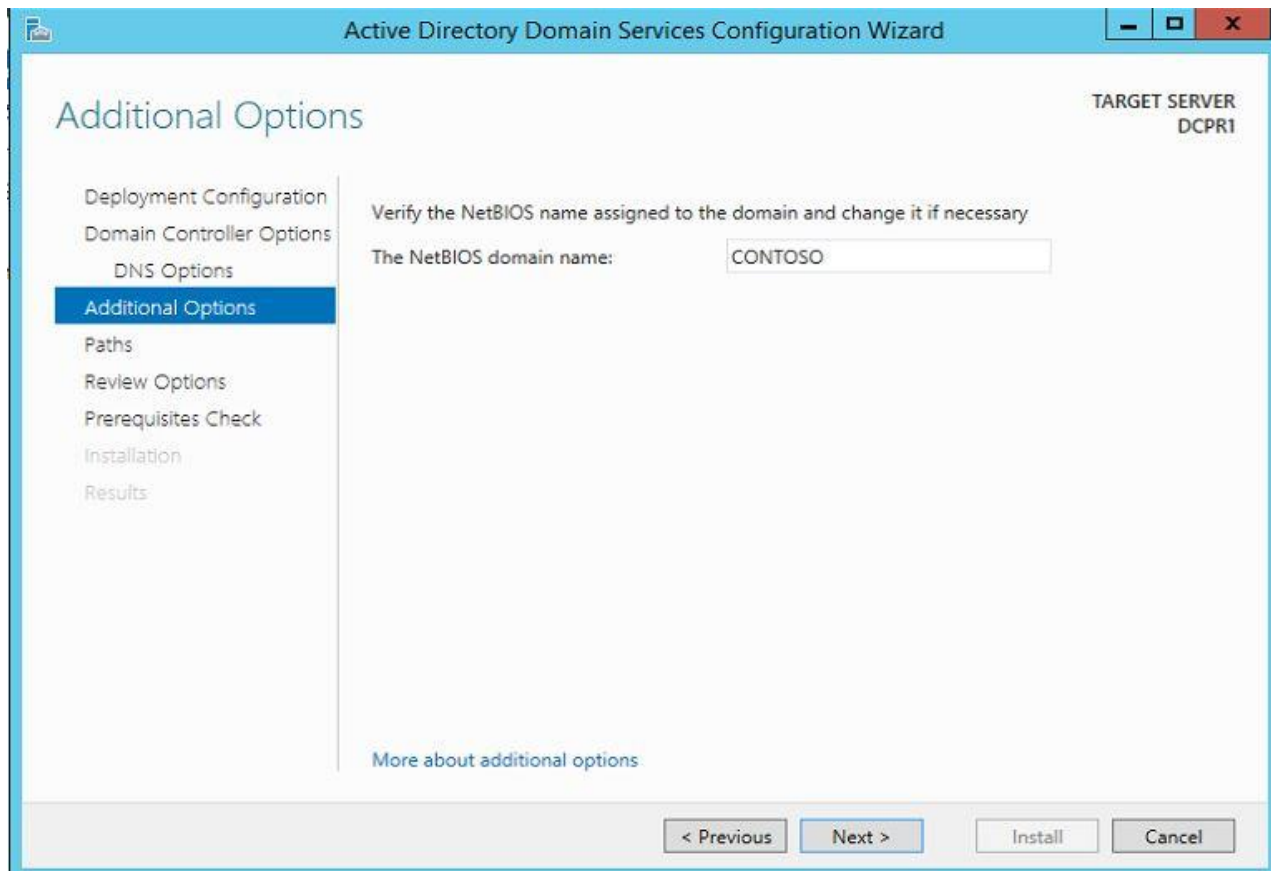
In next window we can select the forest and domain functional levels. i will keep it default. then in domain controller capabilities its by default selected DNS server and Global Catalog as its first DC in the forest. then we need to defined password to use in DC recovery. click on next to continue.



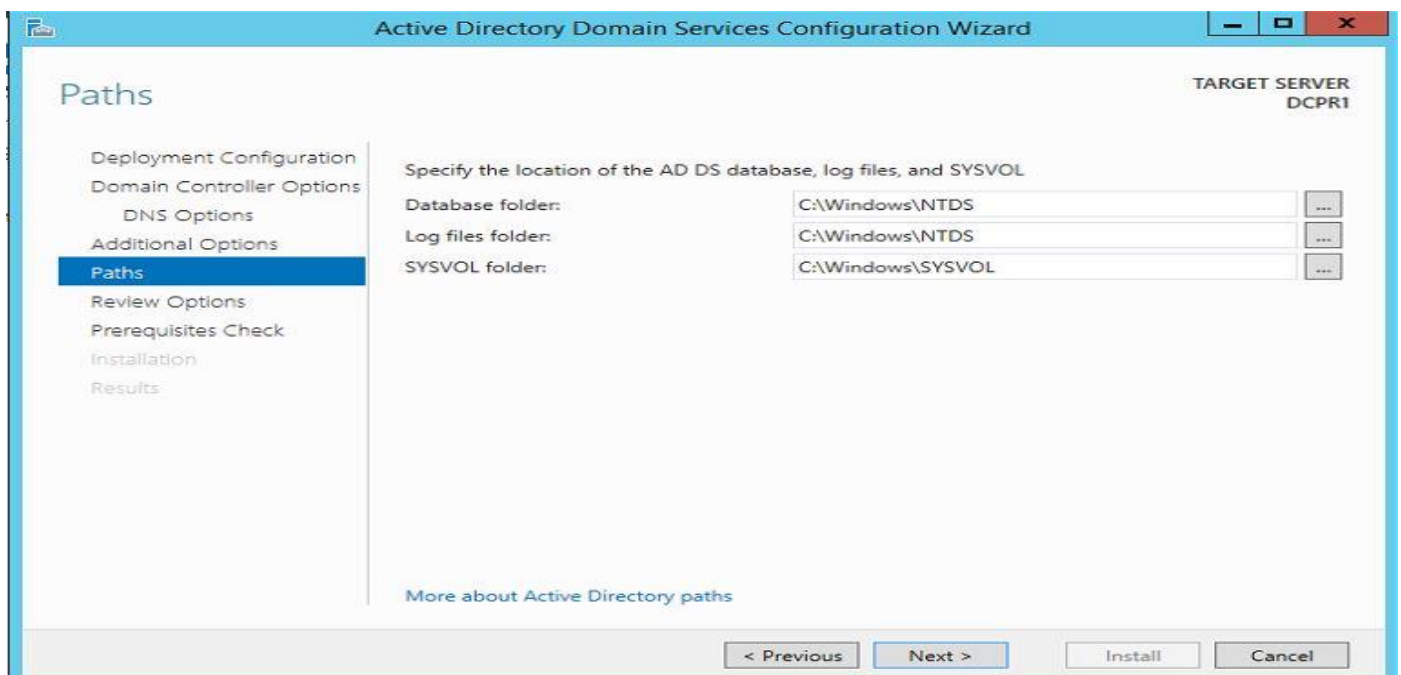
In next window it will give following error but it can be ignore. click on next to continue.



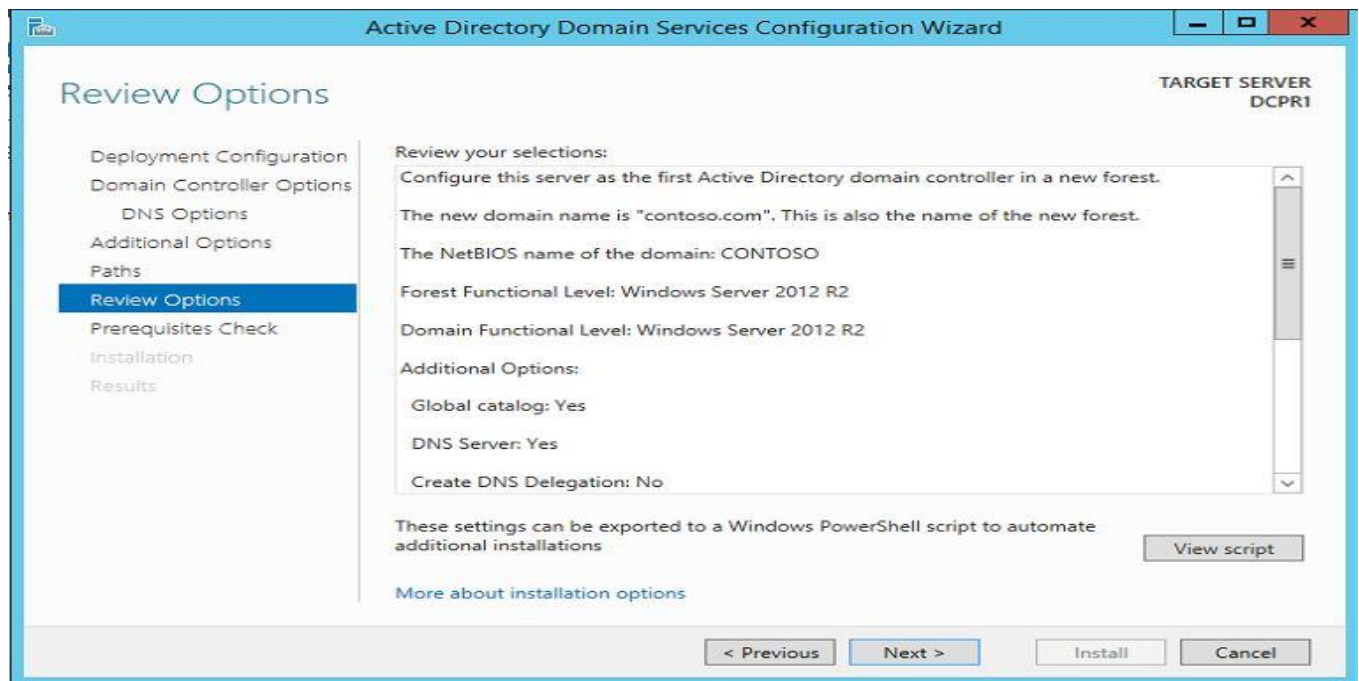
In next window it ask for the netbios name. we can keep it default and click on next to continue.



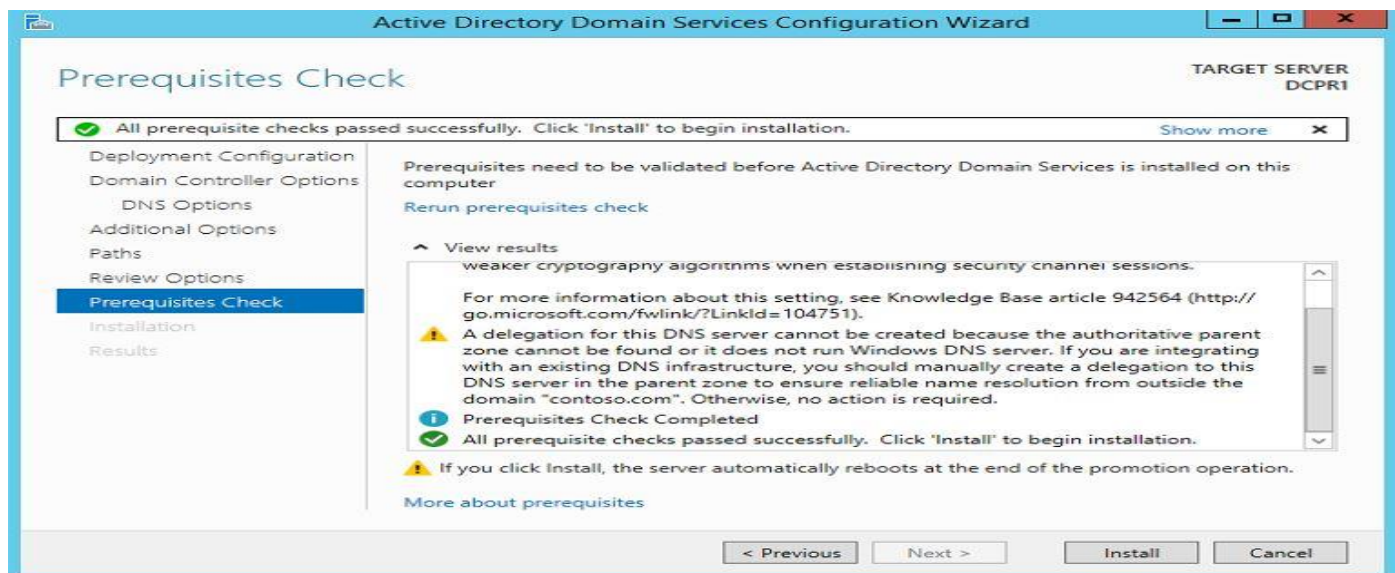
In next window it give option to change file paths for AD database, log files and SYSVOL files. we can change the paths or keep them defaults. once changes are done click on next to continue.



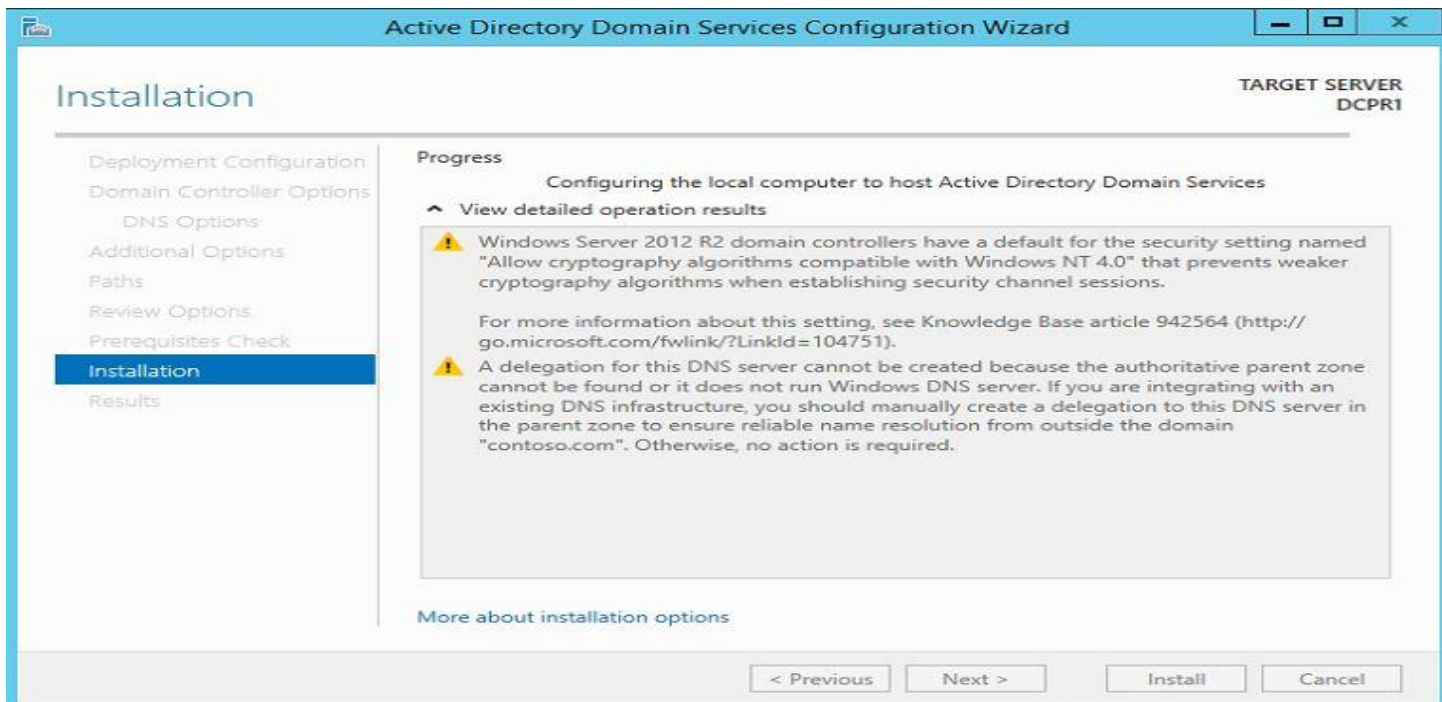
In next window it gives description about the installation. click on next to continue.



In next window it will run system check and verify system is compatible with the selected installation. once test completes successfully click on install button to begin the installation. if its passes any critical errors those needs to be address before the installation begin.



then it will start the install and we need to wait till it finishes.

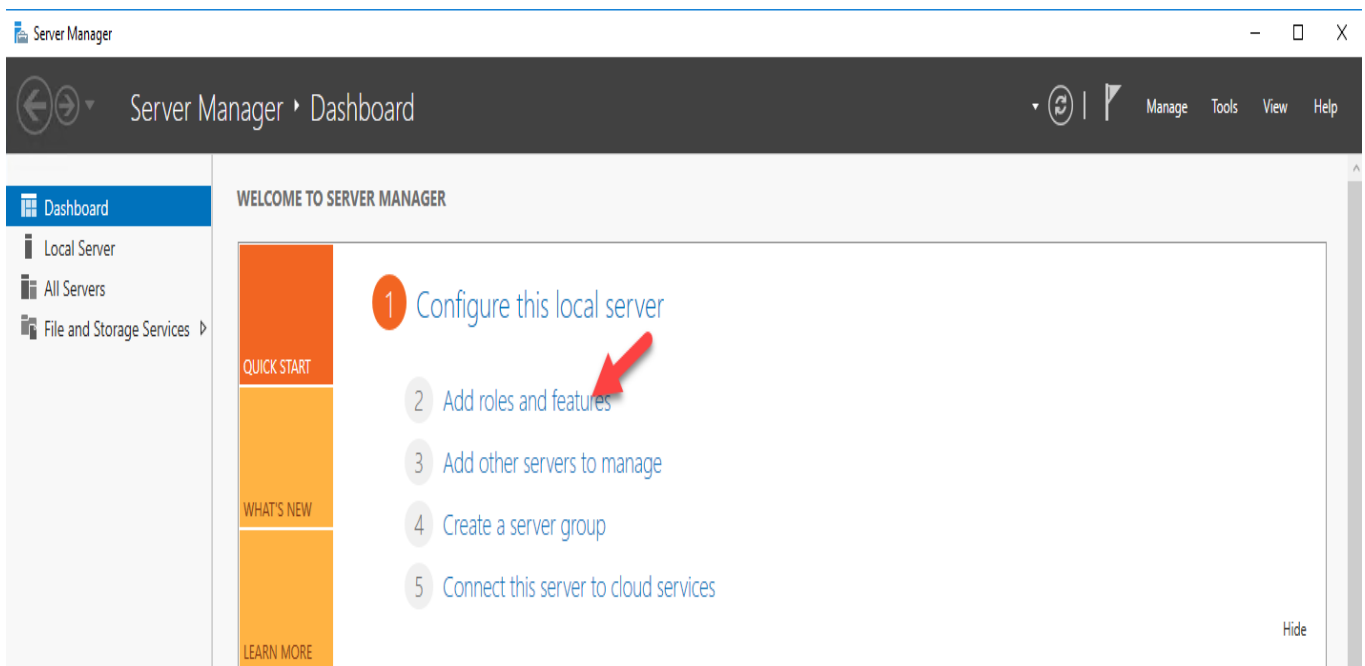


Once its complete the install it will automatically reboot the server.

18.3- Install active directory windows server 2016

تحميل active directory داخل windows server 2016

Then on server manager click on add roles and features



Before you begin

DESTINATION SERVER
REBELTEST-PDC01

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

This wizard helps you install roles, role services, or features. You determine which roles, role services, or features to install based on the computing needs of your organization, such as sharing documents, or hosting a website.

To remove roles, role services, or features:
[Start the Remove Roles and Features Wizard](#)

Before you continue, verify that the following tasks have been completed:

- The Administrator account has a strong password
- Network settings, such as static IP addresses, are configured
- The most current security updates from Windows Update are installed

If you must verify that any of the preceding prerequisites have been completed, close the wizard, complete the steps, and then run the wizard again.

To continue, click Next.

☐ Skip this page by default

< Previous

Next >

Install

Cancel

Select installation type

DESTINATION SERVER
REBELTEST-PDC01

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD).

- ☒ **Role-based or feature-based installation**
Configure a single server by adding roles, role services, and features.
- ☐ **Remote Desktop Services installation**
Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.

< Previous

Next >

Install

Cancel

Select destination server

DESTINATION SERVER
REBELTEST-PDC01

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

Select a server or a virtual hard disk on which to install roles and features.

- ☒ Select a server from the server pool
☐ Select a virtual hard disk

Server Pool

Filter: <input type="text"/>		
Name	IP Address	Operating System
REBELTEST-PDC01		Microsoft Windows Server 2016 Datacenter

1 Computer(s) found

This page shows servers that are running Windows Server 2012 or a newer release of Windows Server, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.

< Previous

Next >

Install

Cancel

Select server roles

DESTINATION SERVER
REBELTEST-PDC01

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

Select one or more roles to install on the selected server.

Roles

- ☐ Active Directory Certificate Services
- ☒ **Active Directory Domain Services**
- ☐ Active Directory Federation Services
- ☐ Active Directory Lightweight Directory Services
- ☐ Active Directory Rights Management Services
- ☐ Device Health Attestation
- ☐ DHCP Server
- ☐ DNS Server
- ☐ Fax Server
- ☒ File and Storage Services (1 of 12 installed)
- ☐ Host Guardian Service
- ☐ Hyper-V
- ☐ MultiPoint Services
- ☐ Network Controller
- ☐ Network Policy and Access Services
- ☐ Print and Document Services
- ☐ Remote Access
- ☐ Remote Desktop Services
- ☐ Volume Activation Services
- ☐ Web Server (IIS)

Description

Active Directory Domain Services (AD DS) stores information about objects on the network and makes this information available to users and network administrators. AD DS uses domain controllers to give network users access to permitted resources anywhere on the network through a single logon process.

< Previous

Next >

Install

Cancel

Select server roles

DESTINATION SERVER
REBELTEST-PDC01

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

Add Roles and Features Wizard



Add features that are required for Active Directory Domain Services?

You cannot install Active Directory Domain Services unless the following role services or features are also installed.

- [Tools] Group Policy Management
- ▲ Remote Server Administration Tools
 - ▲ Role Administration Tools
 - ▲ AD DS and AD LDS Tools
 - Active Directory module for Windows PowerShell
 - ▲ AD DS Tools
 - [Tools] Active Directory Administrative Center
 - [Tools] AD DS Snap-Ins and Command-Line Tools

☒ Include management tools (if applicable)

Add Features

Cancel

< Previous

Next >

Install

Cancel

Select server roles

DESTINATION SERVER
REBELTEST-PDC01

Before You Begin

Installation Type

Server Selection

Server Roles

Features

AD DS

Confirmation

Results

Select one or more roles to install on the selected server.

Roles

- ☐ Active Directory Certificate Services
- ☒ **Active Directory Domain Services**
- ☐ Active Directory Federation Services
- ☐ Active Directory Lightweight Directory Services
- ☐ Active Directory Rights Management Services
- ☐ Device Health Attestation
- ☐ DHCP Server
- ☐ DNS Server
- ☐ Fax Server
- ☒ File and Storage Services (1 of 12 installed)
- ☐ Host Guardian Service
- ☐ Hyper-V
- ☐ MultiPoint Services
- ☐ Network Controller
- ☐ Network Policy and Access Services
- ☐ Print and Document Services
- ☐ Remote Access
- ☐ Remote Desktop Services
- ☐ Volume Activation Services
- ☐ Web Server (IIS)

Description

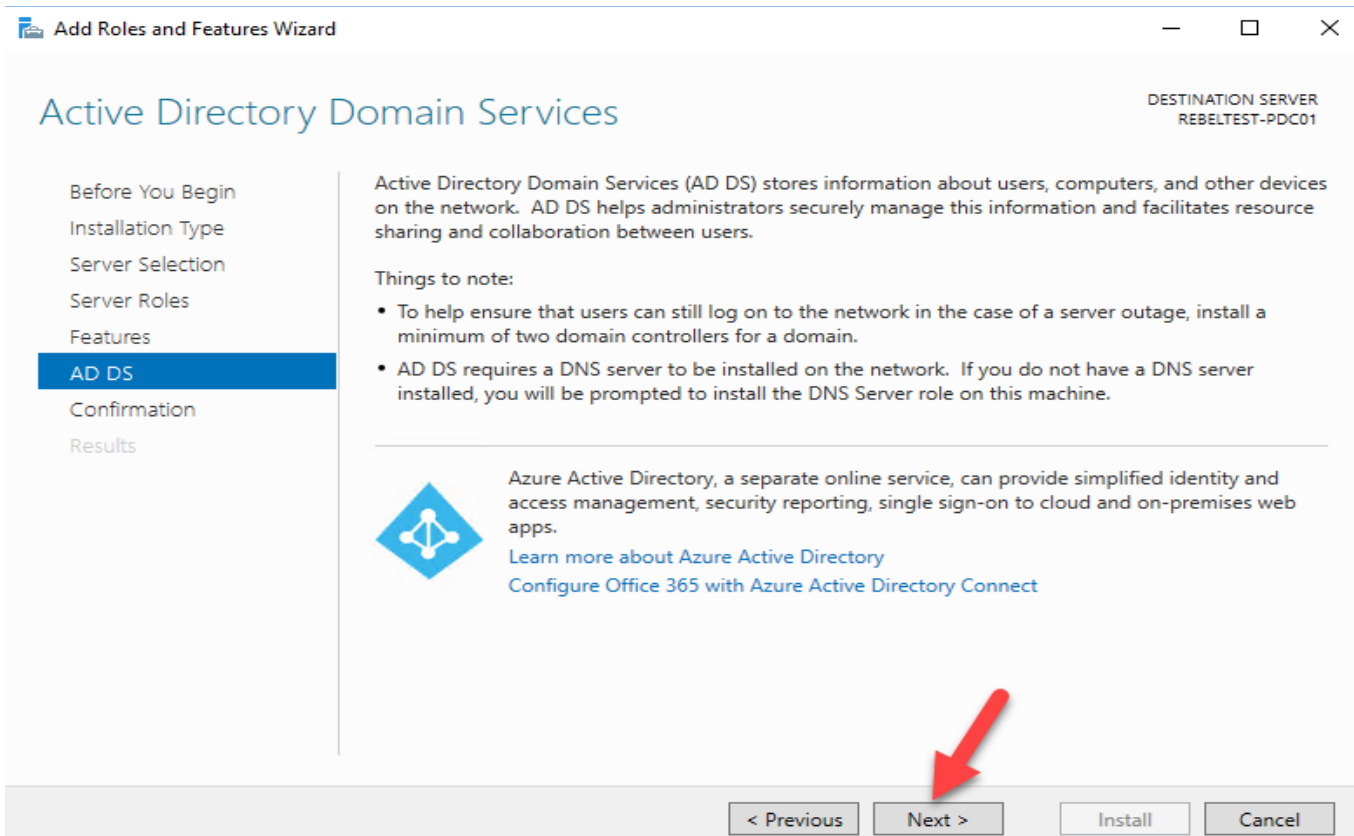
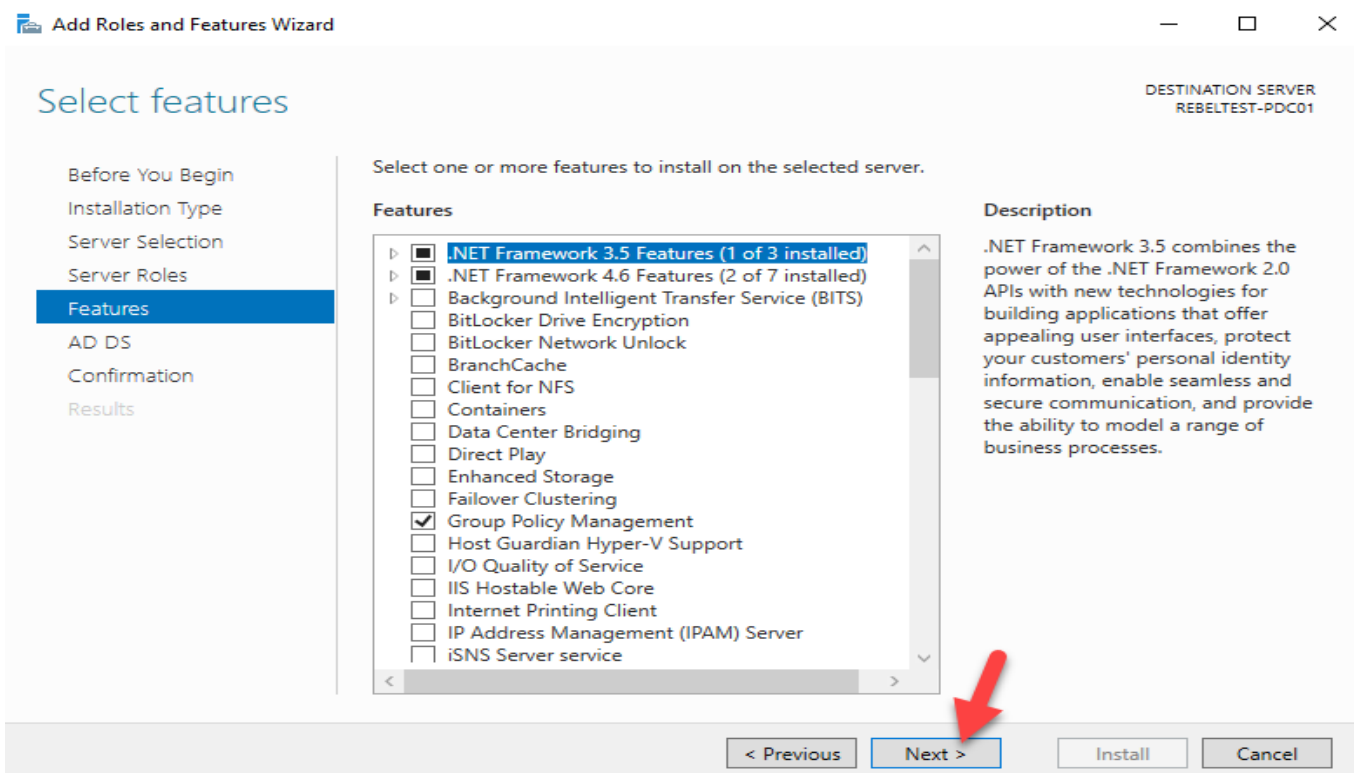
Active Directory Domain Services (AD DS) stores information about objects on the network and makes this information available to users and network administrators. AD DS uses domain controllers to give network users access to permitted resources anywhere on the network through a single logon process.

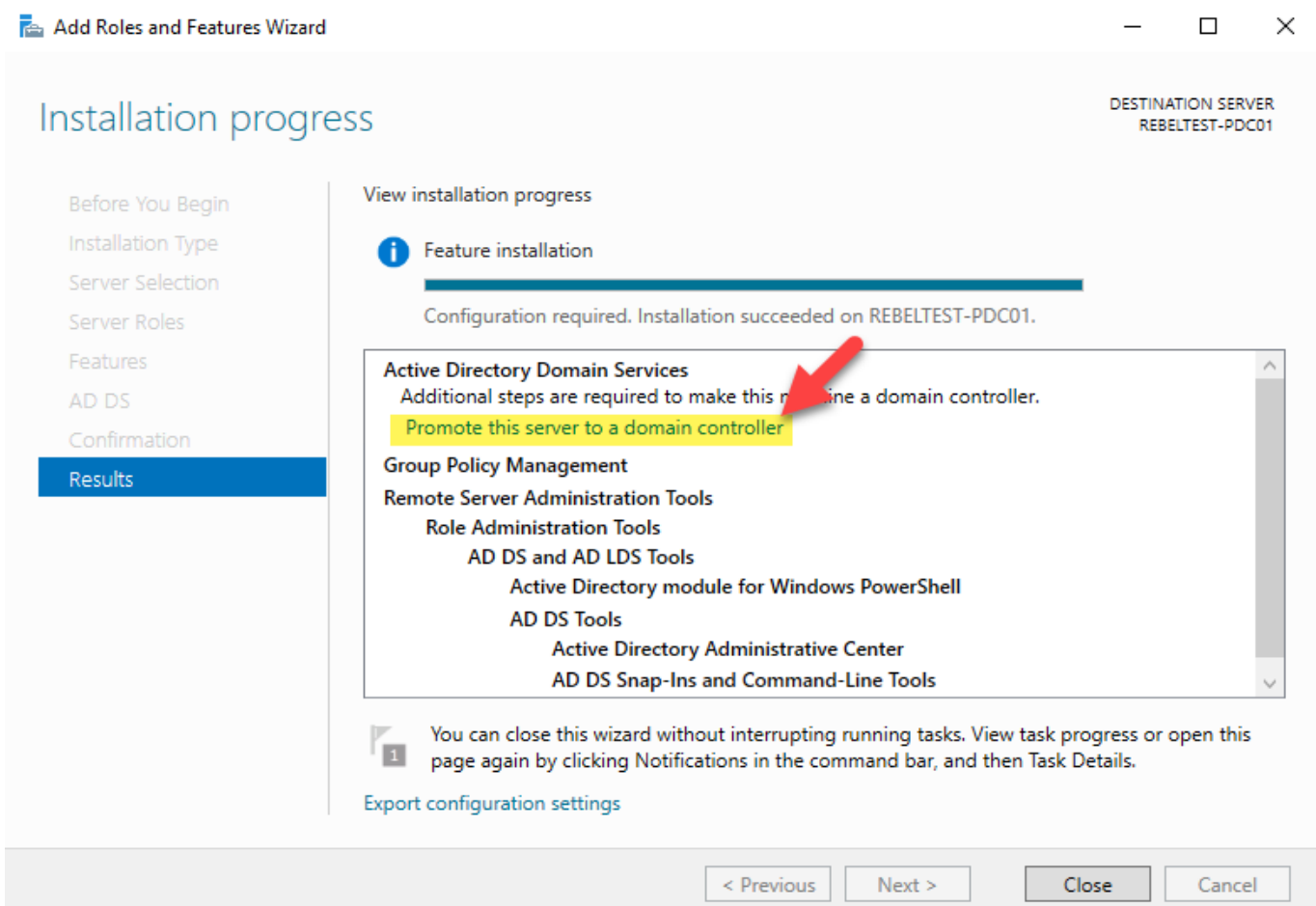
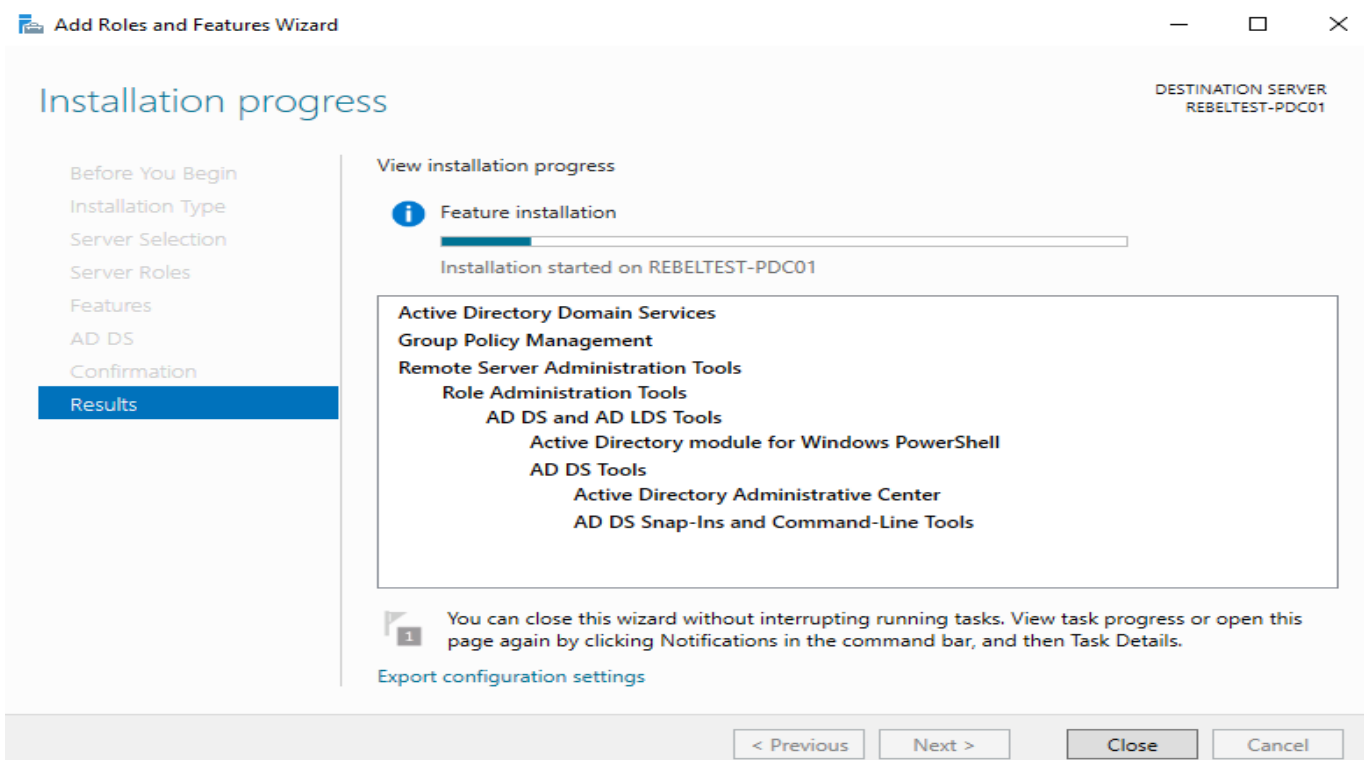
< Previous

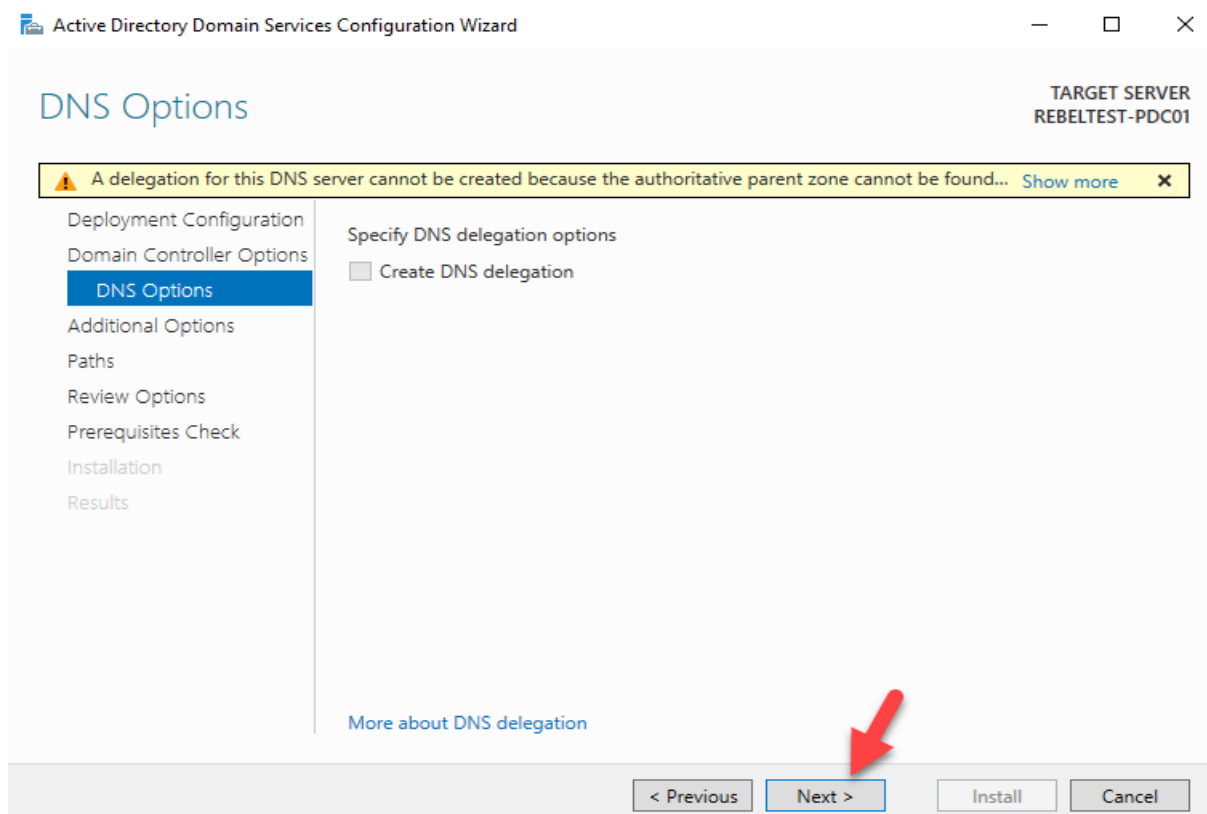
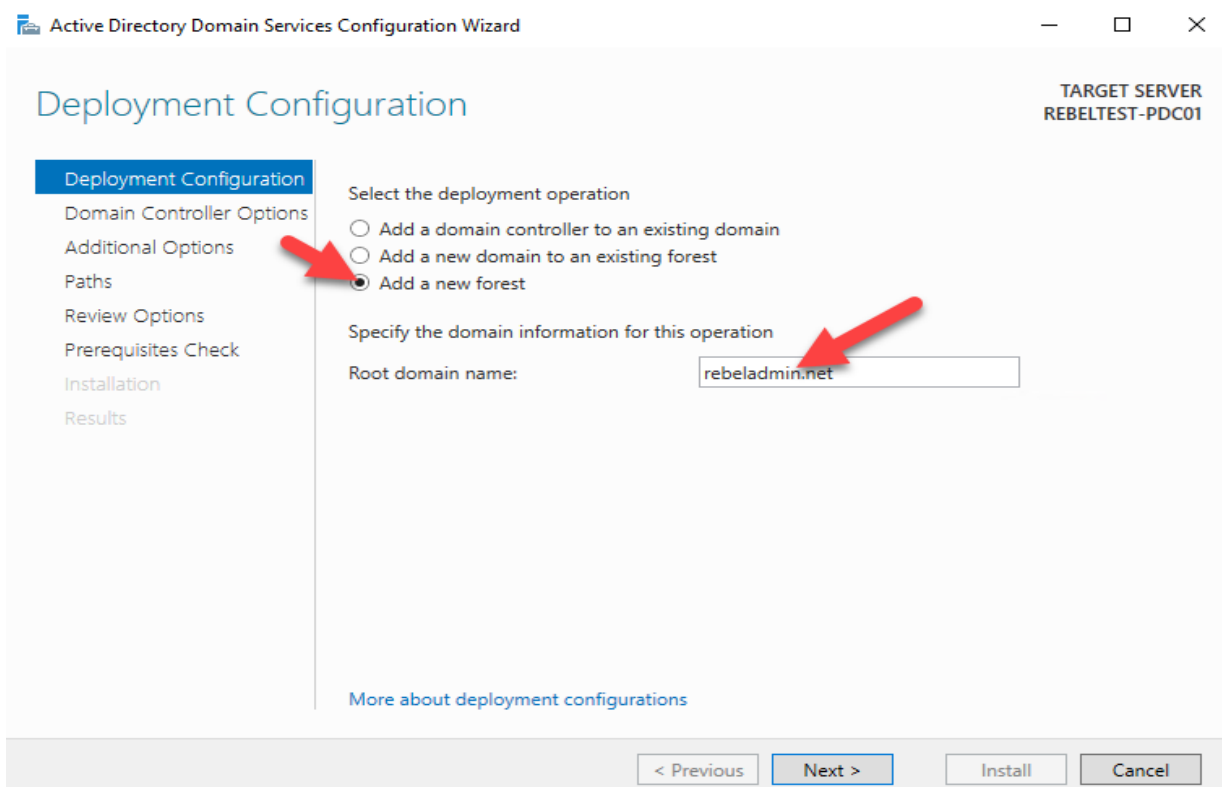
Next >

Install

Cancel







Active Directory Domain Services Configuration Wizard

Additional Options

TARGET SERVER
REBELTEST-PDC01

Deployment Configuration
Domain Controller Options
DNS Options
Additional Options
Paths
Review Options
Prerequisites Check
Installation
Results

Verify the NetBIOS name assigned to the domain and change it if necessary

The NetBIOS domain name:

[More about additional options](#)

< Previous Next > Install Cancel

Active Directory Domain Services Configuration Wizard

Paths

TARGET SERVER
REBELTEST-PDC01

Deployment Configuration
Domain Controller Options
DNS Options
Additional Options
Paths
Review Options
Prerequisites Check
Installation
Results

Specify the location of the AD DS database, log files, and SYSVOL

Database folder: ...

Log files folder: ...

SYSVOL folder: ...

[More about Active Directory paths](#)

< Previous Next > Install Cancel

Review Options

TARGET SERVER
REBELTEST-PDC01

Deployment Configuration
Domain Controller Options
DNS Options
Additional Options
Paths
Review Options
Prerequisites Check
Installation
Results

Review your selections:

Configure this server as the first Active Directory domain controller in a new forest.

The new domain name is "rebeladmin.net". This is also the name of the new forest.

The NetBIOS name of the domain: REBELADMIN

Forest Functional Level: Windows Server 2016

Domain Functional Level: Windows Server 2016

Additional Options:

Global catalog: Yes

DNS Server: Yes

Create DNS Delegation: No

These settings can be exported to a Windows PowerShell script to automate additional installations

[View script](#)[More about installation options](#)

< Previous

Next >

Install

Cancel

Prerequisites Check

TARGET SERVER
REBELTEST-PDC01

✓ All prerequisite checks passed successfully. Click 'Install' to begin installation.

[Show more](#)

Deployment Configuration
Domain Controller Options
DNS Options
Additional Options
Paths
Review Options
Prerequisites Check
Installation
Results

Prerequisites need to be validated before Active Directory Domain Services is installed on this computer

[Rerun prerequisites check](#)

View results

- ⚠ Windows Server 2016 domain controllers have a default for the security setting named "Allow cryptography algorithms compatible with Windows NT 4.0" that prevents weaker cryptography algorithms when establishing security channel sessions.
- For more information about this setting, see Knowledge Base article 942564 (<http://go.microsoft.com/fwlink/?LinkId=104751>).
- ⚠ A delegation for this DNS server cannot be created because the authoritative parent zone cannot be found or it does not run Windows DNS server. If you are integrating with an existing DNS infrastructure, you should manually create a delegation to this DNS server in the parent zone to ensure reliable name resolution from outside the domain "rebeladmin.net". Otherwise, no action is required.

⚠ If you click Install, the server automatically reboots at the end of the promotion operation.

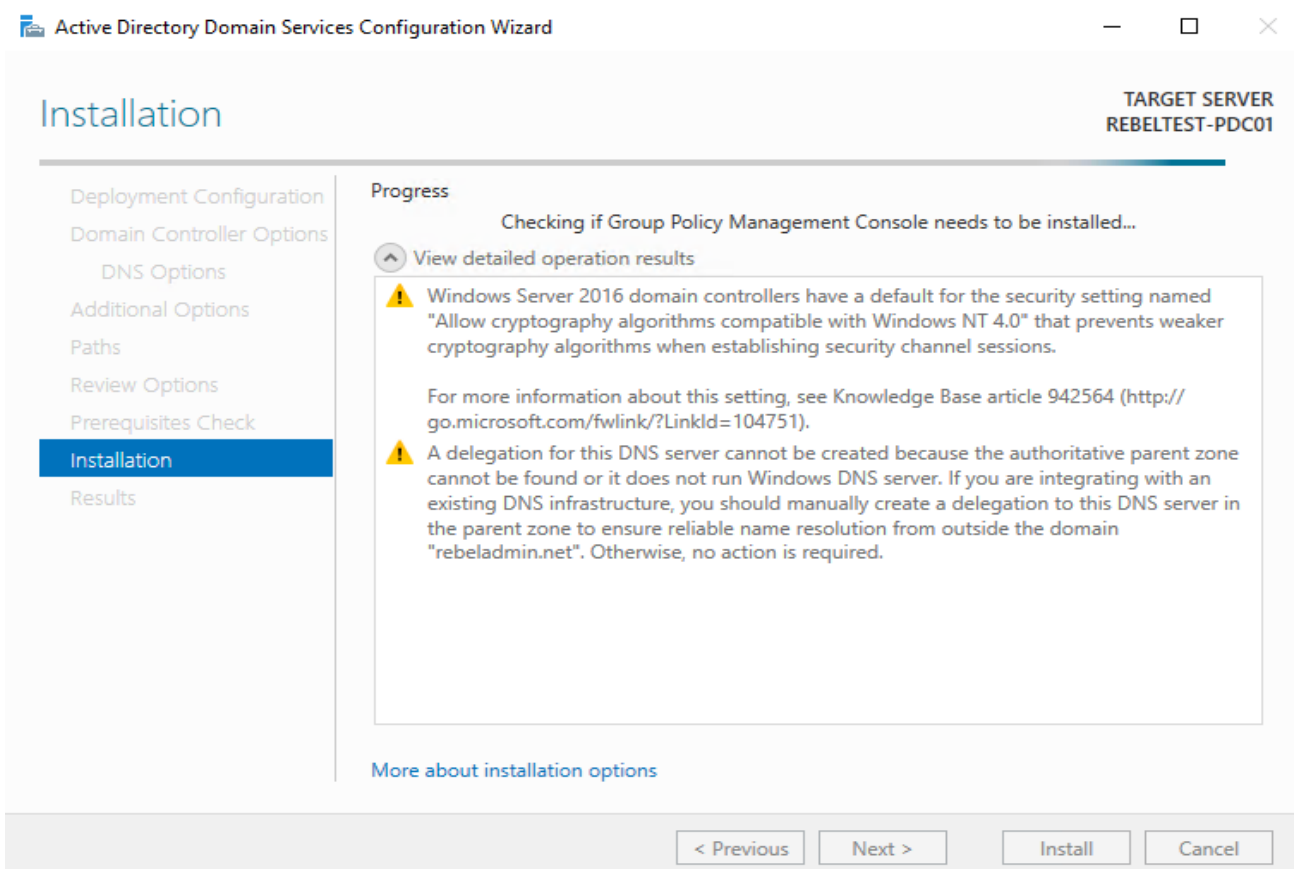
[More about prerequisites](#)

< Previous

Next >

Install

Cancel



19-Add object (users,group,OU,computers) in active directory

إضافة (users,group,OU,computers) داخل active directory

الوحدة التنظيمية (OU) organizational unit وهي تشبه المجلد أي بمعنى أنها تقوم بتنظيم Active directory الي مجموعة من OUs على حسب الأقسام الموجود في ال domain وذلك تسهل عملية البحث والإضافة والتعديل داخل Active directory.

المجموعة group وهي عبارة عن تجمع مجموعة من المستخدمين users يشتركون في طبيعة العمل فبدل من تطبيق امر معين على كل مستخدم على حد نقوم بتطبيق الامر على المجموعة فيتم تطبيق هذا العمل بشكل تلقائي على جميع المستخدمين داخل هذه المجموعة.

organizational unit (OU). An OU can contain computers, users, user groups, and other network objects. Usually, an OU is used for the purpose of grouping things for administrative purposes, such as delegating administrative rights and assigning policies to the group as a single unit.

Group	User/ Session	Description
Account Operators		A built-in group that exists only on domain controllers. By default, the group has no members. By default, Account Operators have permission to create, modify, and delete accounts for users, groups, and computers in all containers and organizational units (OUs) of Active Directory except the Builtin container and the Domain Controllers OU. Account Operators do not have permission to modify the Administrators and Domain Admins groups, nor do they have permission to modify the accounts for members of those groups.
	Administrator	A user account for the system administrator. This account is the first account created during operating system installation. The account cannot be deleted or locked out. It is a member of the Administrators group and cannot be removed from that group.
Administrators		A built-in group . After the initial

installation of the operating system, the only member of the group is the Administrator account. When a computer joins a domain, the Domain Admins group is added to the Administrators group. When a server becomes a domain controller, the Enterprise Admins group also is added to the Administrators group. The Administrators group has built-in capabilities that give its members full control over the system. The group is the default owner of any object that is created by a member of the group.

Anonymous	A user who has logged on anonymously.
<i>Authenticated Users</i>	A group that includes all users whose identities were authenticated when they logged on. Membership is controlled by the operating system.
Backup Operators	A built-in group. By default, the group has no members. Backup Operators can back up and restore all files on a computer, regardless of the permissions

that protect those files. Backup Operators also can log on to the computer and shut it down.

<i>Batch</i>	A group that implicitly includes all users who have logged on through a batch queue facility such as task scheduler jobs. Membership is controlled by the operating system.
Cert Publishers	A global group that includes all computers that are running an enterprise certificate authority. Cert Publishers are authorized to publish certificates for User objects in Active Directory.
Cert Server Admins	Certificate Authority Administrators - authorized to administer certificates for User objects in Active Directory. (Domain Local)
Cert Requesters	Members can request certificates (Domain Local)
<i>Creator Group</i>	A placeholder in an inheritable ACE.

When the ACE is inherited, the system replaces this SID with the SID for the primary group of the object's current owner. The primary group is used only by the POSIX subsystem.

Creator
Owner

A placeholder in an inheritable access control entry (ACE). When the ACE is inherited, the system replaces this SID with the SID for the object's current owner.

Dialup

A group that implicitly includes all users who are logged on to the system through a dial-up connection. Membership is controlled by the operating system.

DnsAdmins
(installed with DNS)

Members of this group have administrative access to the DNS Server service. This group has no default members.

DnsUpdateProxy
(installed with DNS)

Members of this group are DNS clients that can perform dynamic updates on behalf of other clients, such as DHCP servers. This group has no default

members.

Domain Admins

A global group whose members are authorized to administer the domain. By default, the Domain Admins group is a member of the Administrators group on all computers that have joined a domain, including the domain controllers.

Domain Admins is the default owner of any object that is created in the domain's Active Directory by any member of the group. If members of the group create other objects, such as files, the default owner is the Administrators group.

Domain Computers

A global group that includes all computers that have joined the domain, excluding domain controllers.

Domain Controllers

A global group that includes all domain controllers in the domain. New domain controllers are added to this group automatically.

Domain Guests

A global group that, by default, has only one member, the domain's built-in Guest

account.

Domain Users

A global group that, by default, includes all user accounts in a domain. When you create a user account in a domain, it is added to this group automatically.

Enterprise Admins

A group that exists only in the root domain of an Active Directory forest of domains. It is a universal group if the domain is in native mode, a global group if the domain is in mixed mode. The group is authorized to make forest-wide changes in Active Directory, such as adding child domains. By default, the only member of the group is the Administrator account for the forest root domain.

***Enterprise
Controllers***

A group that includes all domain controllers in an Active Directory service forest of domains. Membership is controlled by the operating system.

Everyone

A group that includes all users, even guests. Membership is controlled by the

operating system.

In Windows XP and later, the Anonymous Logon security group has been removed from the *Everyone* security group: see [Q278259](#) and the group policy [Let Everyone permissions apply to anonymous users](#)

Group Policy
Creators Owners

A global group that is authorized to create new Group Policy objects in Active Directory. By default, the only member of the group is Administrator. The default owner of a new Group Policy object is usually the user who created it. If the user is a member of Administrators or Domain Admins, all objects that are created by the user are owned by the group. Owners have full control of the objects they own.

Guest

A user account for people who do not have individual accounts. This user account does not require a password. By default, the Guest account is disabled.

Guests	A built-in group. By default, the only member is the Guest account. The Guests group allows occasional or one-time users to log on with limited privileges to a computer's built-in Guest account.
HelpServicesGroup	XP - Group for the Help and Support Center
<i>Interactive</i>	A group that includes all users who have logged on interactively. Membership is controlled by the operating system.
KRBTGT	A service account that is used by the Key Distribution Center (KDC) service.
<i>Local System</i>	A service account that is used by the operating system.
<i>Network</i>	A group that implicitly includes all users who are logged on through a network connection. Membership is controlled by the operating system.
Network Configuration	Members of this group can make changes to TCP/IP settings and renew

Operators	and release TCP/IP addresses on domain controllers in the domain. This group has no default members.
	<i>Nobody</i> No security principal.
Performance Monitor Users	Members of this group can monitor performance counters on domain controllers in the domain, locally and from remote clients without being a member of the Administrators or Performance Log Users groups.
Performance Log Users	Members of this group can manage performance counters, logs and alerts on domain controllers in the domain, locally and from remote clients without being a member of the Administrators group.
Power Users	A built-in group. By default, the group has no members. This group does not exist on domain controllers. Power Users can create local users and groups; modify and delete accounts that they have created; and remove users from the

Power Users, Users, and Guests groups. Power Users also can install most applications; create, manage, and delete local printers; and create and delete file shares.

Pre-Windows 2000
Compatible Access

A backward compatibility group which allows read access on all users and groups in the domain. By default, the special identity Everyone is a member of this group. Add users to this group only if they are running Windows NT 4.0 or earlier.

Principal Self
or
Self

Principal Self
or
Self

A placeholder in an ACE on a user, group, or computer object in Active Directory. When you grant permissions to Principal Self, you grant them to the security principal represented by the object. During an access check, the operating system replaces the SID for Principal Self with the SID for the security principal represented by the object.

Print Operators

A built-in group that exists only on

domain controllers. By default, the only member is the Domain Users group. Print Operators can manage printers and document queues.

RAS and IAS Servers

Servers in this group are permitted access to the remote access properties of users. A domain local group. By default, this group has no members. Computers that are running the Routing and Remote Access service are added to the group automatically. Members of this group have access to certain properties of User objects, such as Read Account Restrictions, Read Logon Information, and Read Remote Access Information.

Remote Desktop Users

XP - Members in this group are granted the right to logon remotely

Replicator

In NT 4 domains, this group was called Replicators and is used by the directory replication service. In 2K/XP the group is present but is not used. Do not add users to this group.

Schema Admins

A group that exists only in the root domain of an Active Directory forest of domains. It is a universal group if the domain is in native mode , a global group if the domain is in mixed mode . The group is authorized to make schema changes in Active Directory. By default, the only member of the group is the Administrator account for the forest root domain. Because this group has significant power in the forest, add users with caution.

Server Operators

A built-in group that exists only on domain controllers. By default, the group has no members. Server Operators can log on to a server interactively; create and delete network shares; start and stop services; back up and restore files; format the hard disk of the computer; and shut down the computer.

Service

A group that includes all security principals that have logged on as a service. Membership is controlled by the

operating system.

Terminal Server

Users

A group that includes all users who have logged on to a Terminal Services server. Membership is controlled by the operating system.

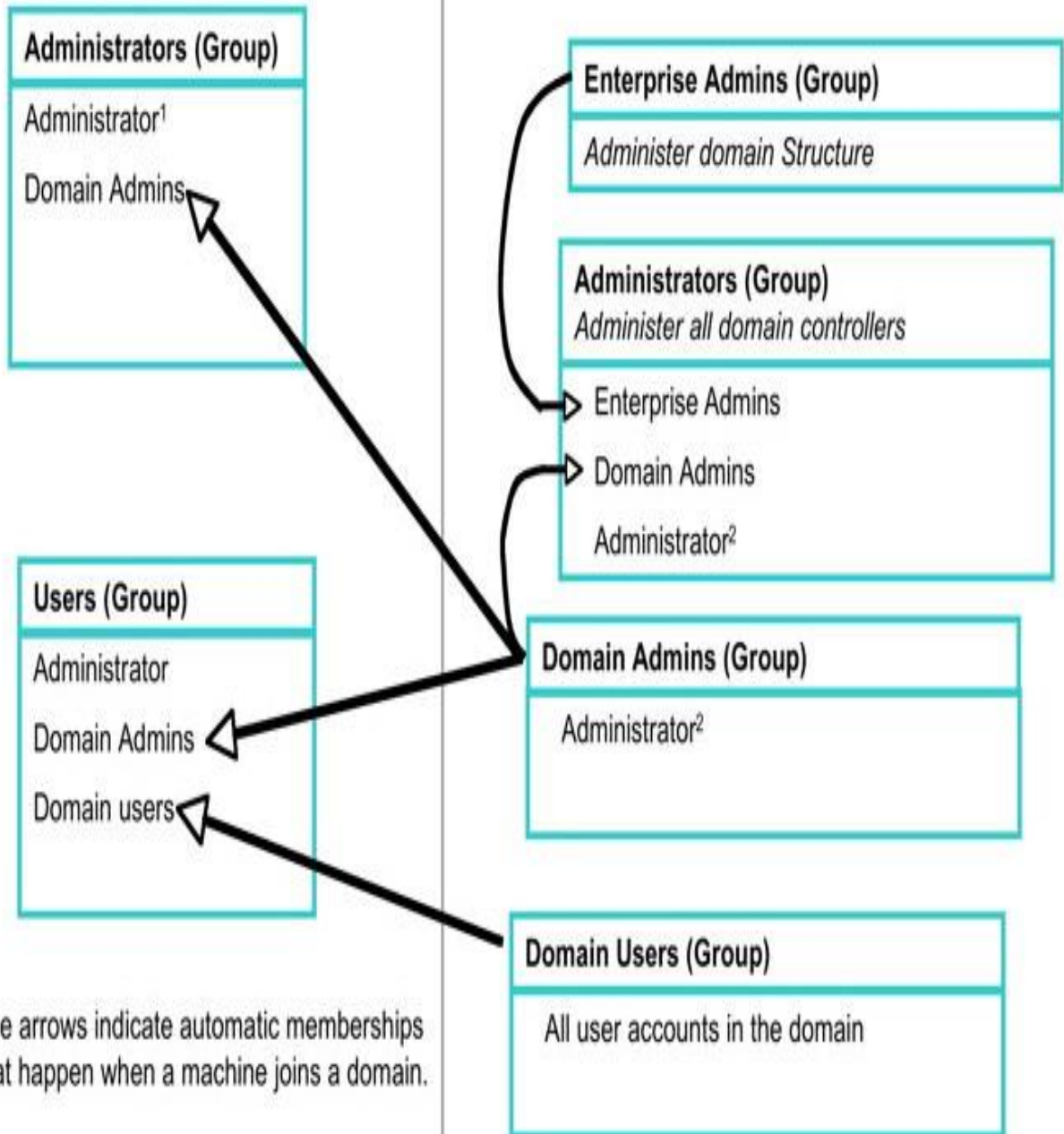
Users

A built-in group. After the initial installation of the operating system, the only member is the Authenticated Users group. When a computer joins a domain, the Domain Users group is added to the Users group on the computer. Users can perform tasks such as running applications, using local and network printers, shutting down the computer, and locking the computer. Users can install applications that only they are allowed to use if the installation program of the application supports per-user installation.

Default Admin Users and Groups:

----- Machine(s) -----

----- Domain -----

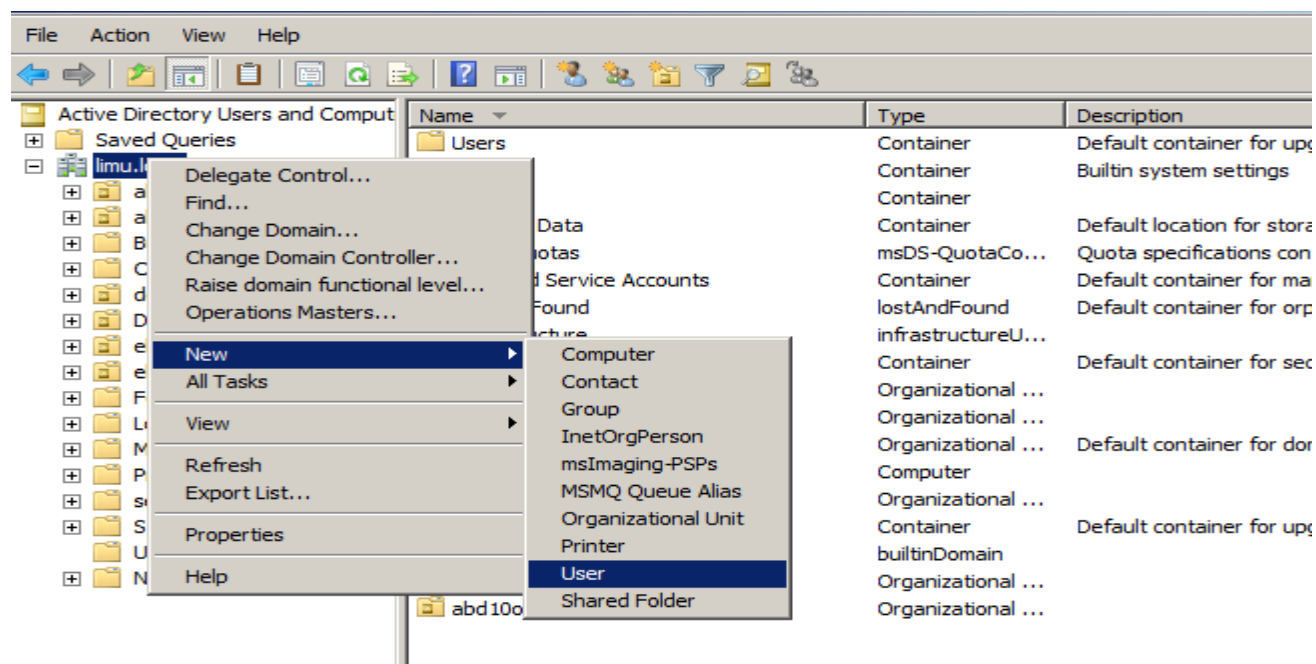


1 = Local Administrator

2 = Domain Administrator

19.1- Add objects (users,group,OU,computers) in active directory windows server 2008

إضافة (users,group,OU,computers) داخل active directory في windows server 2008



Create user

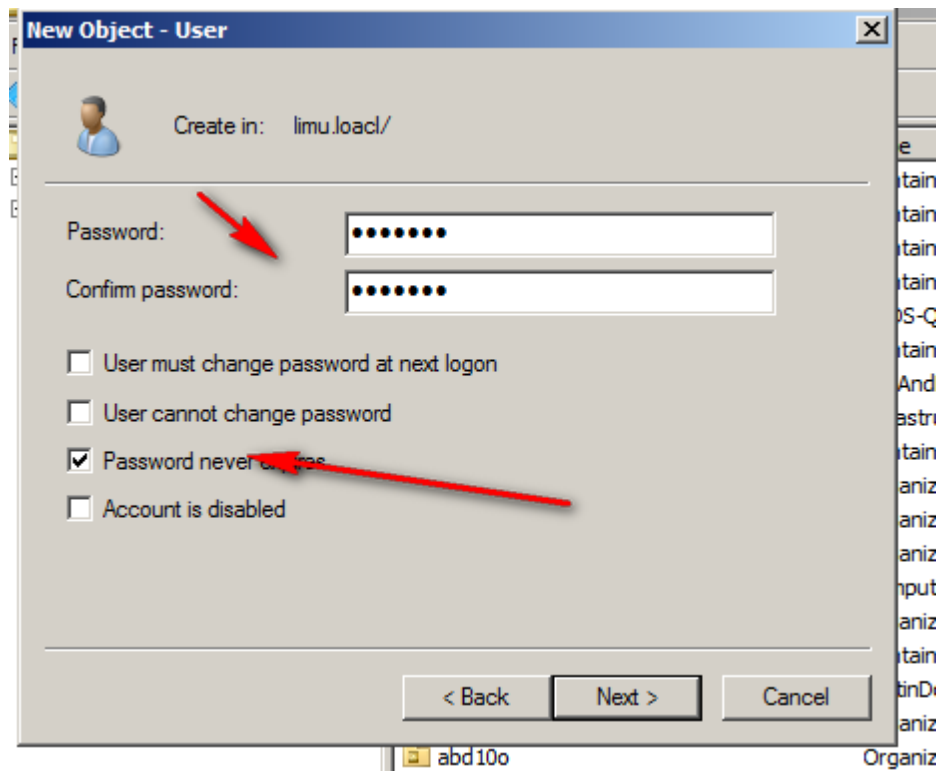
The screenshot shows the 'New Object - User' dialog box. The 'Create in' field is set to 'limu.local/'. The 'First name' field contains 'elrashdi', the 'Last name' field contains 'saleh', and the 'Full name' field contains 'elrashdi saleh'. The 'User logon name' field contains 'elrashdi' and the domain dropdown is set to '@limu.local'. The 'User logon name (pre-Windows 2000)' field contains 'LIMU\elrashdi'. The 'Next >' button is highlighted.

Set password

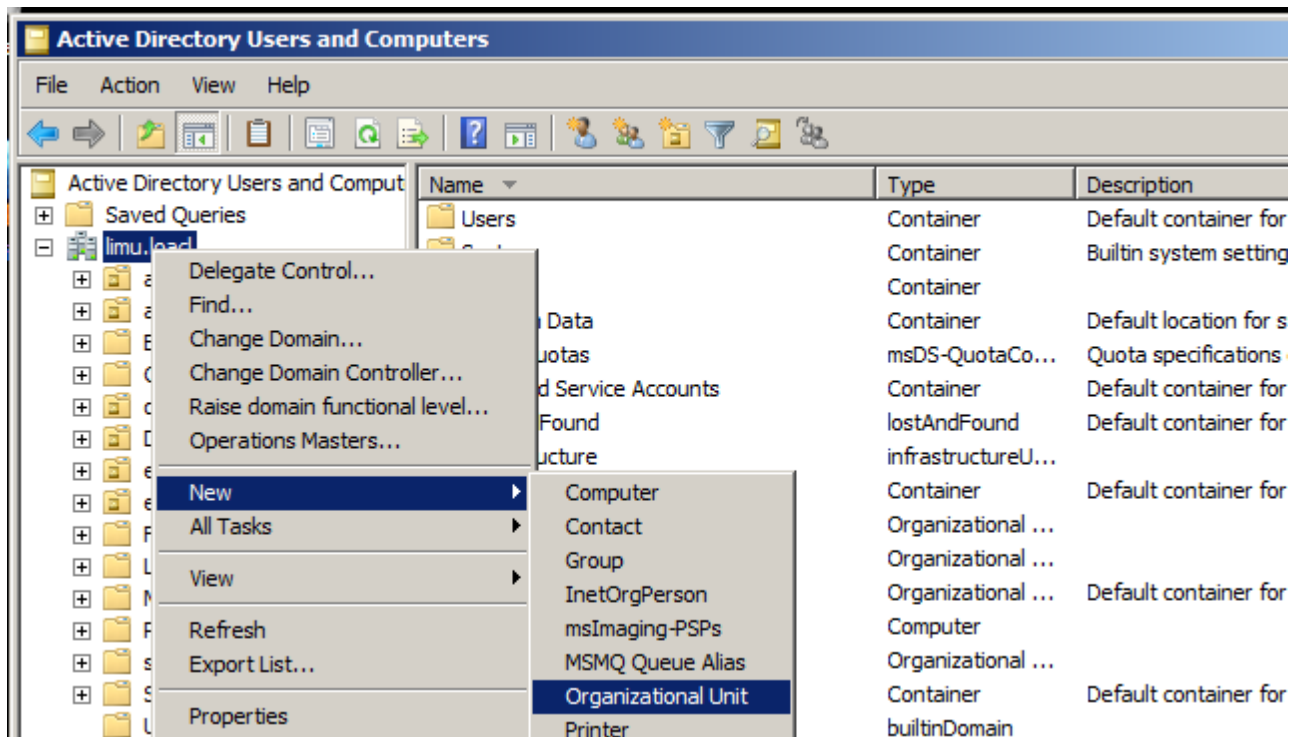
The screenshot shows the 'New Object - User' dialog box. At the top, it says 'Create in: limu.local/'. Below this are two password input fields: 'Password:' and 'Confirm password:'. Both fields contain masked characters (dots). A red arrow points to the 'Password:' field. Below the password fields are four checkboxes: 'User must change password at next login' (unchecked), 'User cannot change password' (unchecked), 'Password never expires' (checked, with a red arrow pointing to it), and 'Account is disabled' (unchecked). At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

The screenshot shows the 'New Object - User' dialog box, Step 2: User Information. It contains several text input fields: 'First name:' (filled with 'elrashdi'), 'Last name:' (filled with 'saleh'), 'Full name:' (filled with 'elrashdi saleh'), 'User logon name:' (filled with 'elrashdi'), and 'User logon name (pre-Windows 2000):' (filled with 'LIMU\'). There are also 'Initials:' and domain selection fields. At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

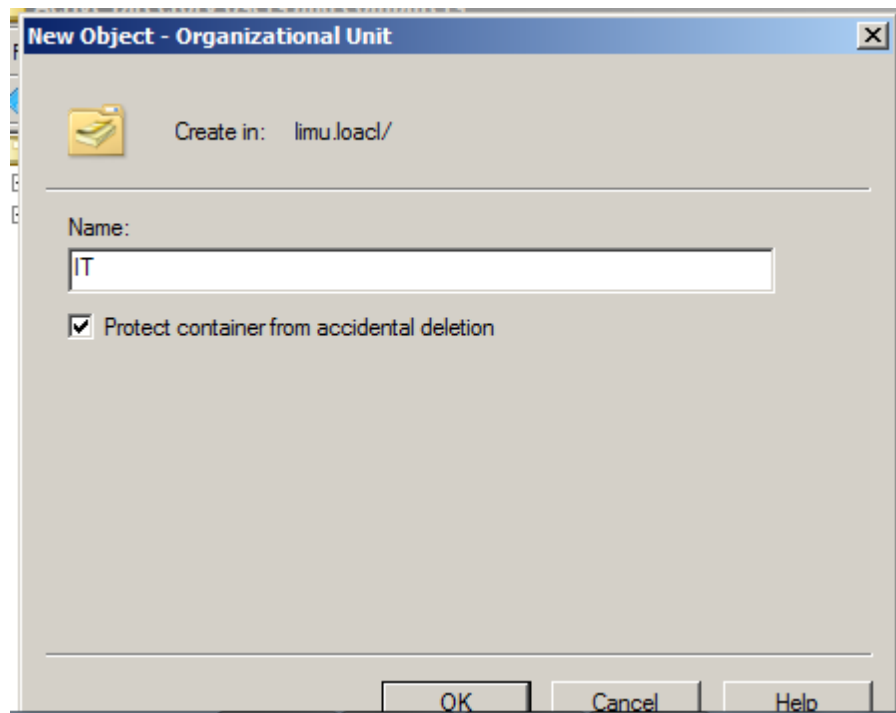
Set password



Create OU

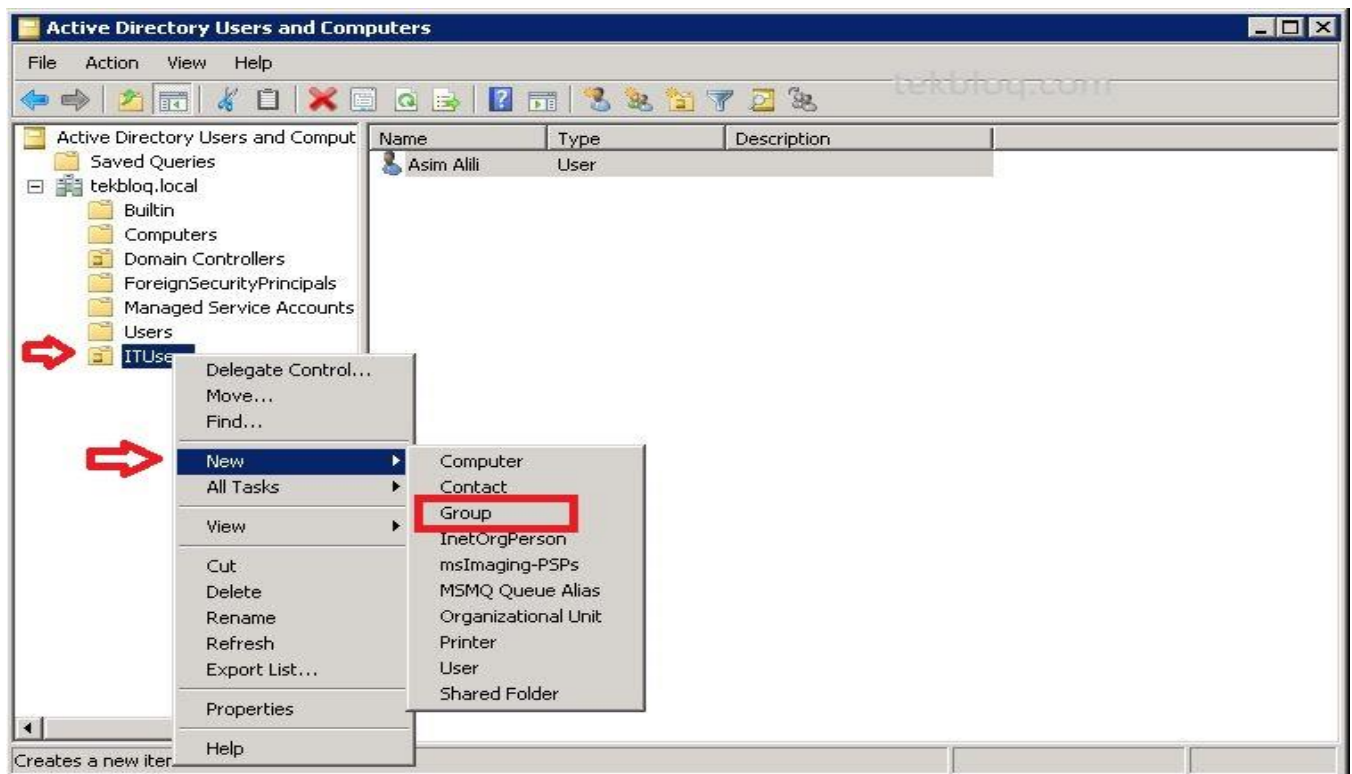


Create OU



Create group

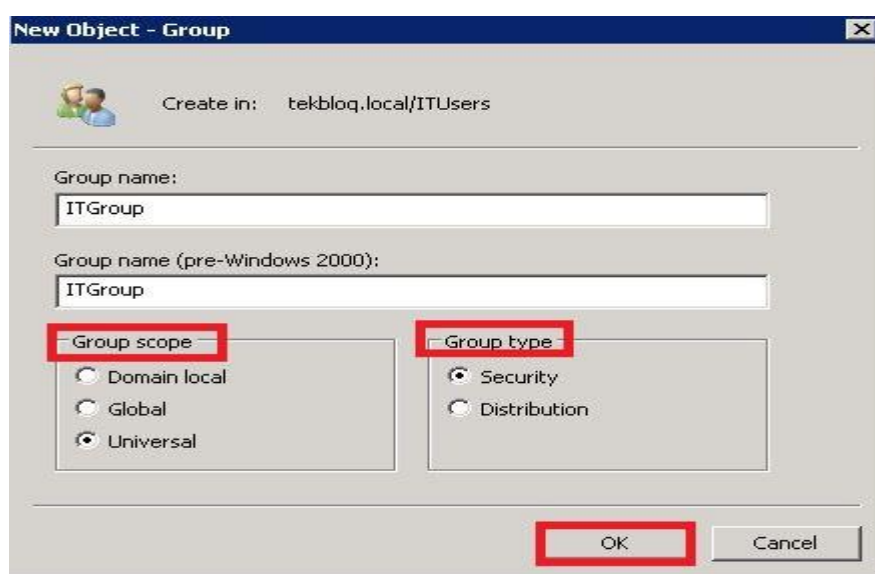
To create group right click on ITUsers OU and Click New and then click Group:



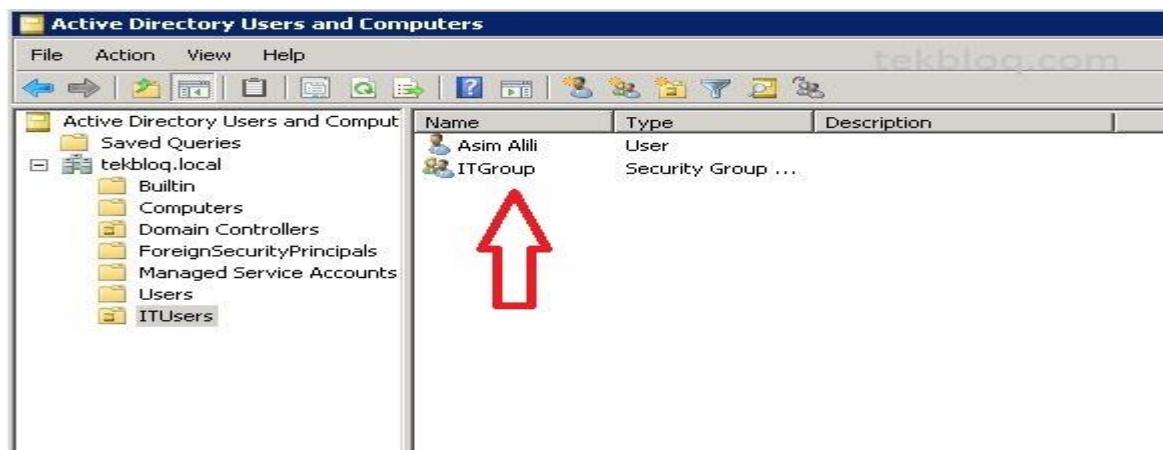
Type group name , Group scope and type for that and click OK:

The Group type indicates whether the group can be used to assign permissions to other network resources, such as files and printers. Both security and distribution groups can be used for e-mail distribution lists.

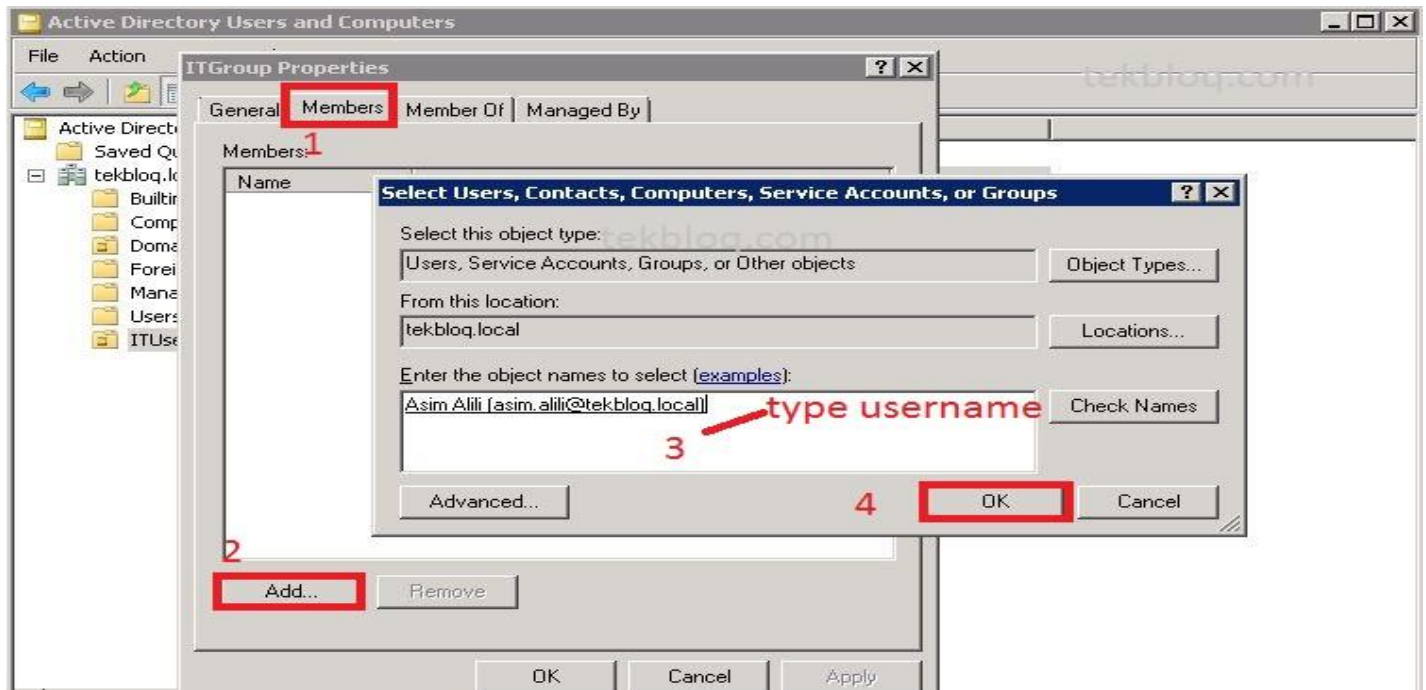
The Group scope determines the visibility of the group and what type of objects can be contained within the.



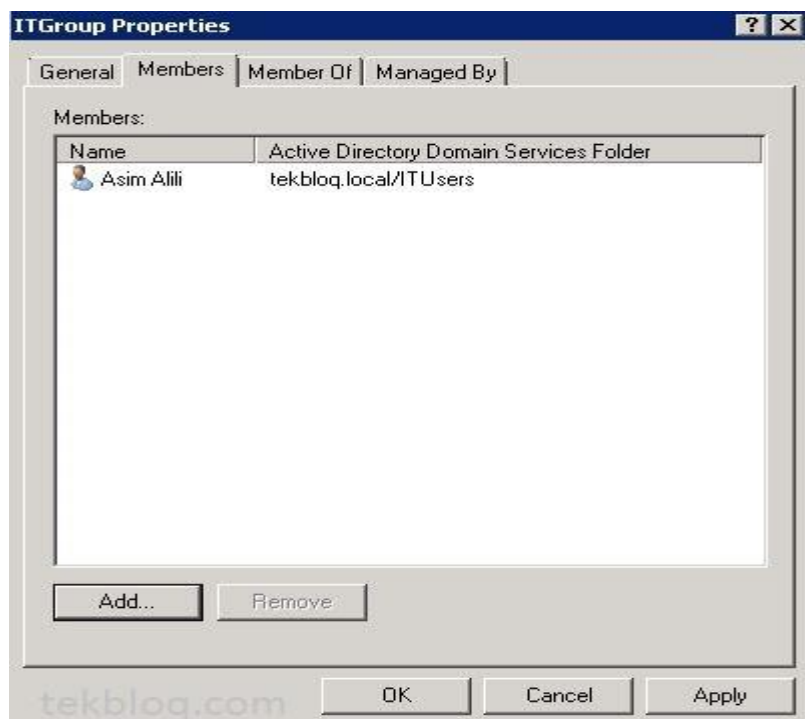
ITGroup group created:



To add member to that group double-click on that groups and click Members, click Add and type name for that user and click OK

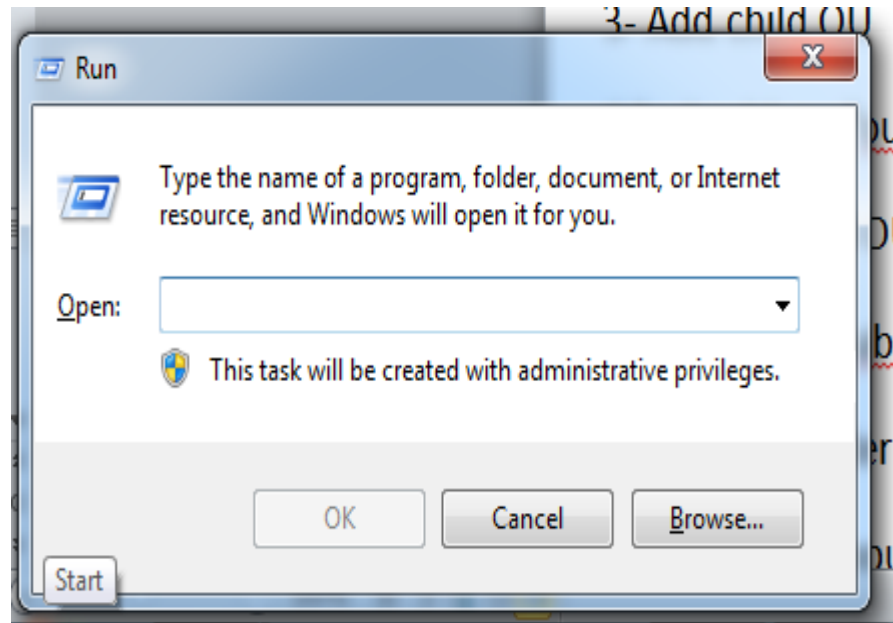


And click OK:

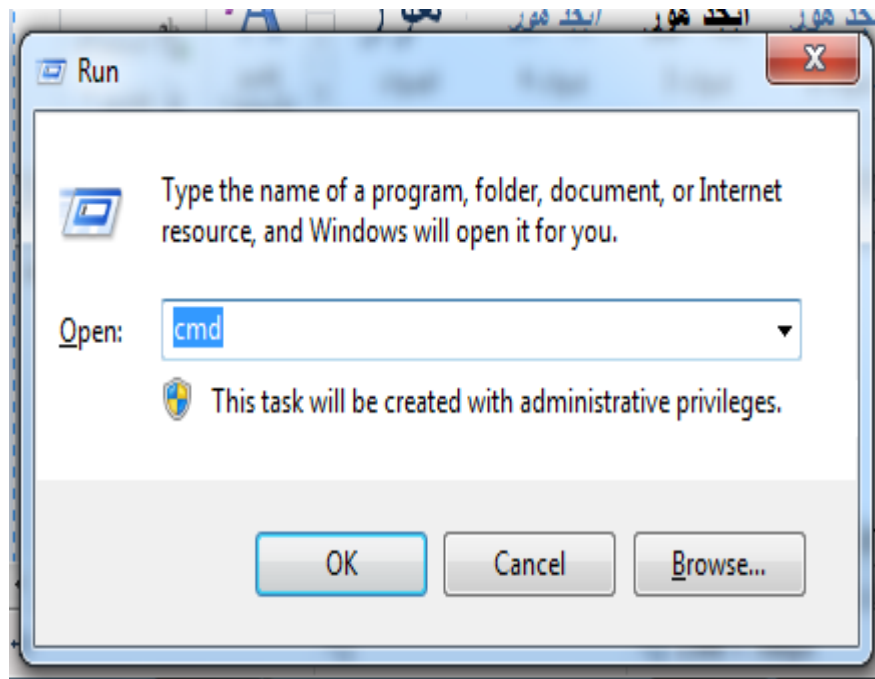


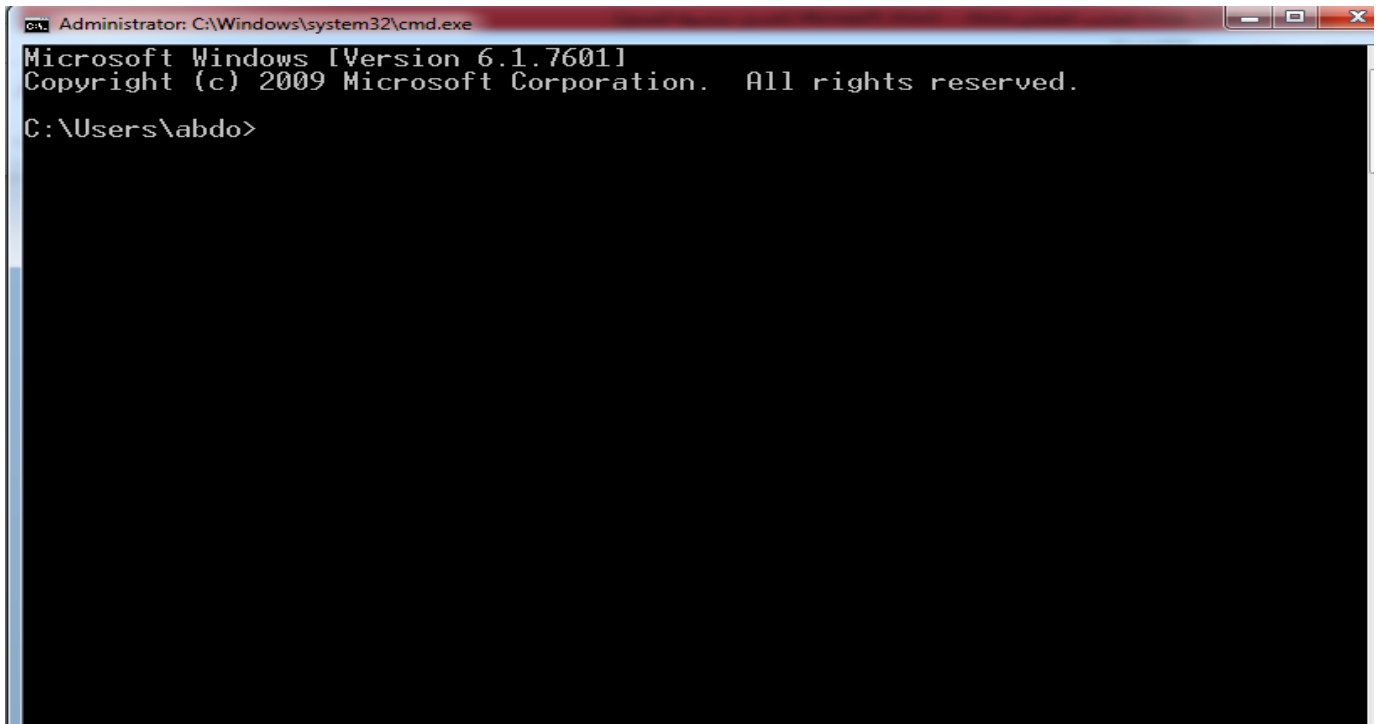
19.1.1- create objects in active directory in windows server 2008 by using command line

Open run



Type cmd





Type those commands

C:\> dsadd ou "ou=Elrashdi,dc=limu,dc=local"

2- Delete OU

C:\>dsrm "ou=Elrashdi,dc=limu,dc= local "

3- Add child OU

C:\>dsadd ou "ou=abdo,ou=Elrashdi,dc=limu,dc=local"

4- Delete child OU

C:\>dsrm "ou=abdo,ou=Elrashdi,dc=limu,dc=local"

5- Add computer to active directory

C:\>dsadd computer "cn=com1,cn=computers,dc=limu,dc= local "

6- Delete computer

```
C:\>dsrm "cn=com1,cn=computers,dc=limu,dc= local "
```

7- Add user to active directory

```
C:\>dsadd user "cn=A.Elrashdi,cn=users,dc=limu,dc= local " -fn abdel salam -ln saleh -pwd  
P@sw0rd -samid A.Elrashdi -upn A.Elrashdi@limu.local
```

8- Delete user from active directory

```
C:\>dsrm "cn=A.Elrashdi,cn=users,dc=limu,dc=local"
```

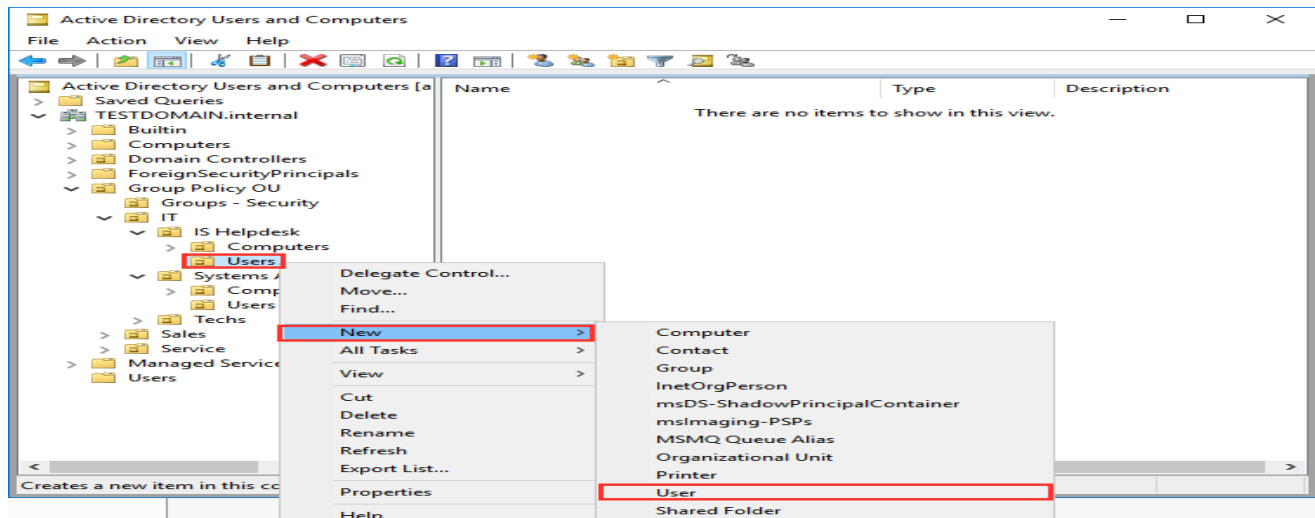
19.2- Add objects (users,group,OU,computers) in active directory windows server 2016

Creating AD Users and Groups – Standard User Accounts

Go through and setup all of the remaining user accounts for the environment and place them in the proper OUs. Remember, use the **Copy** feature as much as possible after setting up one user.

Navigate to **Group Policy OU | IT | Helpdesk | Users**

Right-click **Users** and select **New | User**



- Fill in the information

New Object - User

Create in: N.internal/Group Policy OU/IT/IS Helpdesk/Users

First name: Joe Initials:

Last name: Smith

Full name: Joe Smith

User logon name: jsmith @TESTDOMAIN.internal

User logon name (pre-Windows 2000): TESTDOMAIN\ jsmith

< Back Next > Cancel

Type a password twice.

Leave the User must change password at next logon enabled

New Object - User

Create in: TESTDOMAIN.internal/Group Policy OU/IT/IS Hel

Password:

Confirm password:

☒ User must change password at next logon

☐ User cannot change password

☐ Password never expires

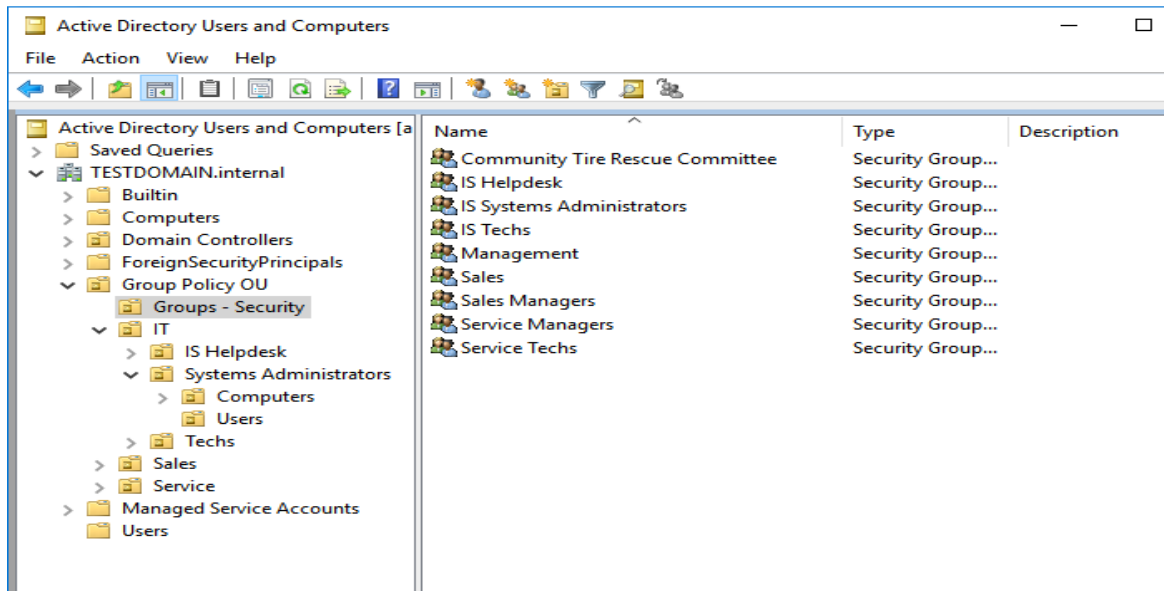
☐ Account is disabled

< Back Next > Cancel

Finish creating the users and placing them into the proper OUs.

Creating AD Users and Groups – Groups

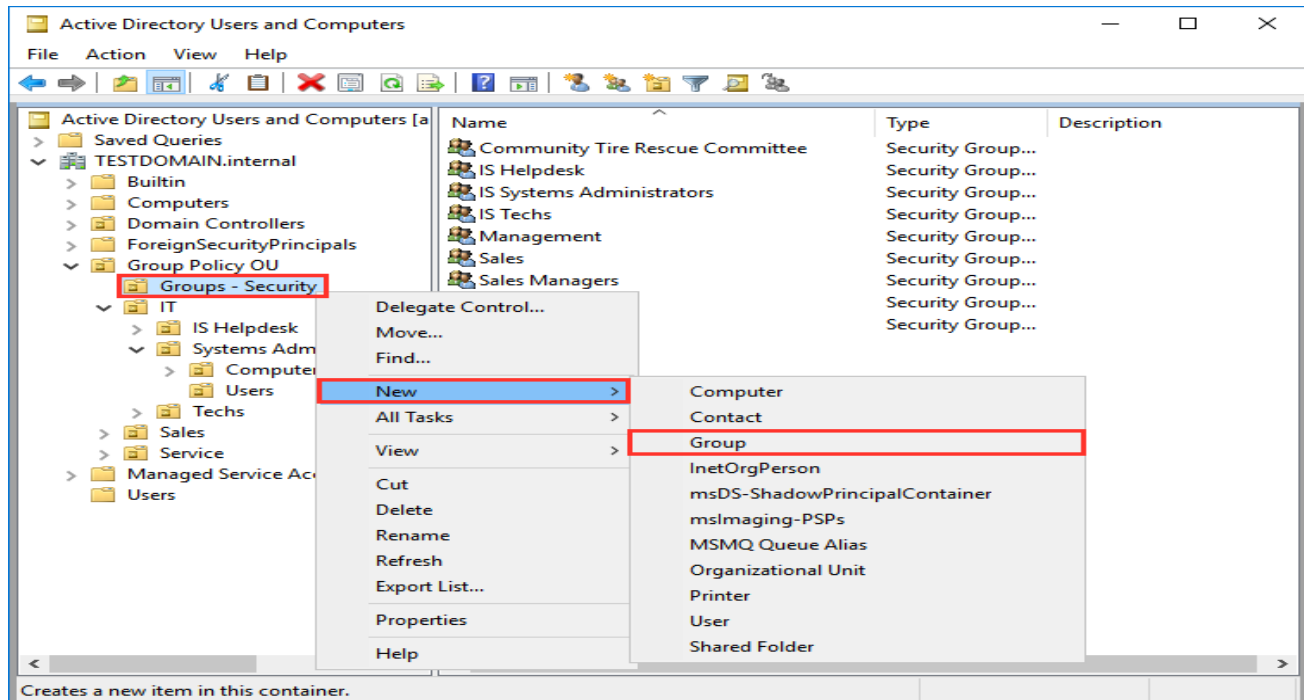
Finally, let's create some groups and assign the associated people to them.



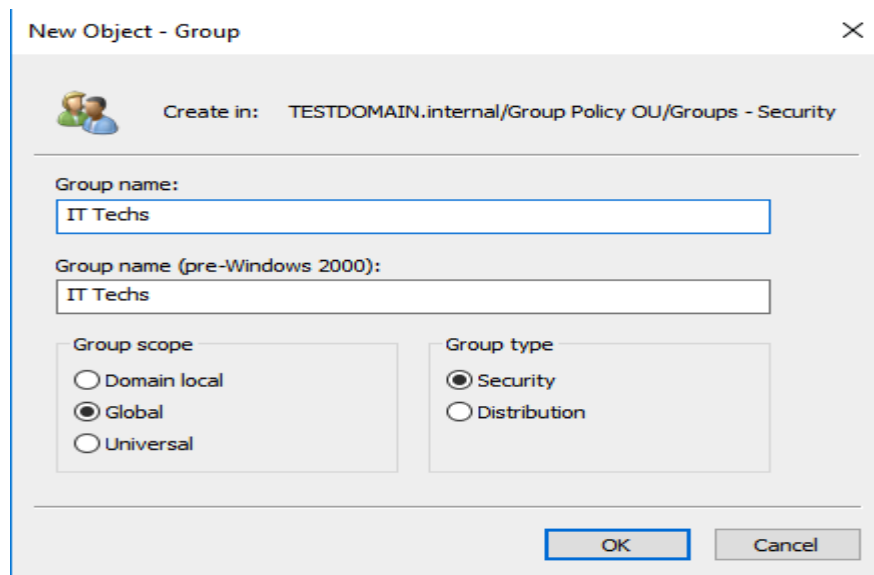
Navigate to Group Policy OU | Groups – Security

Right-click Groups – Security

Select New | Group

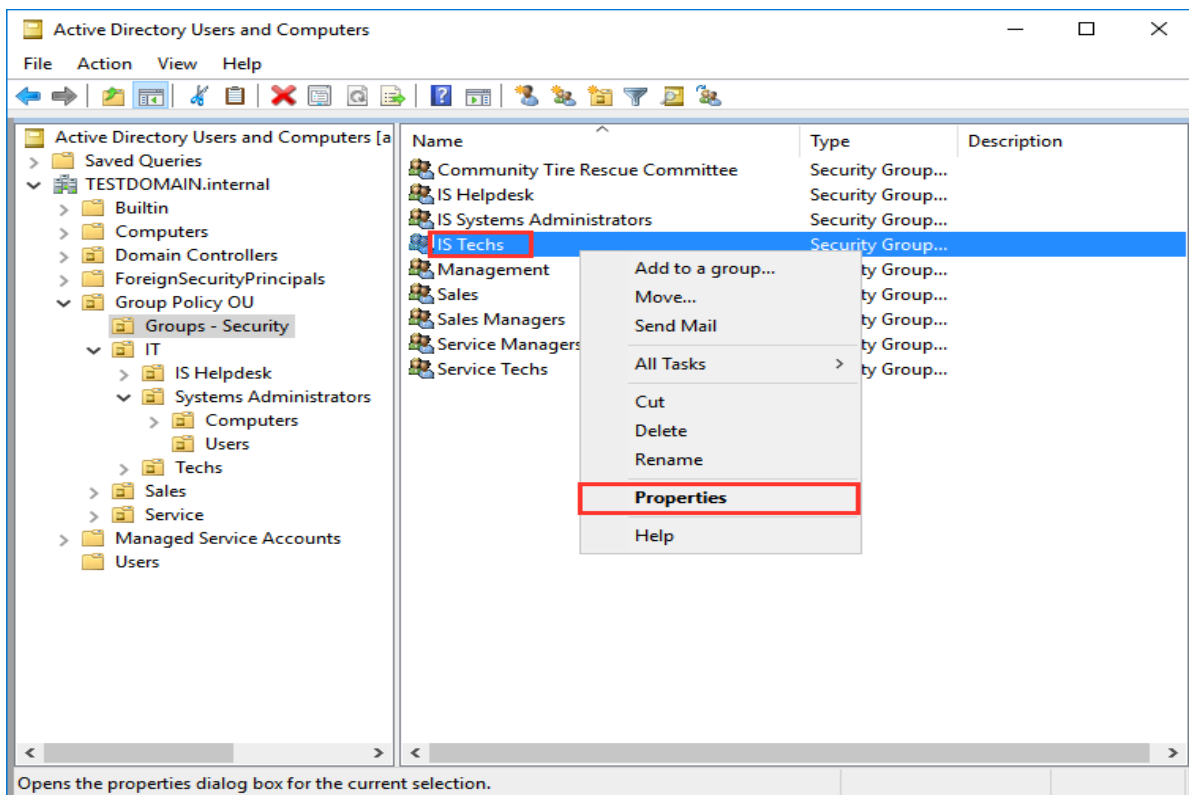


Fill in the information. For this one, I am calling this group IT Techs

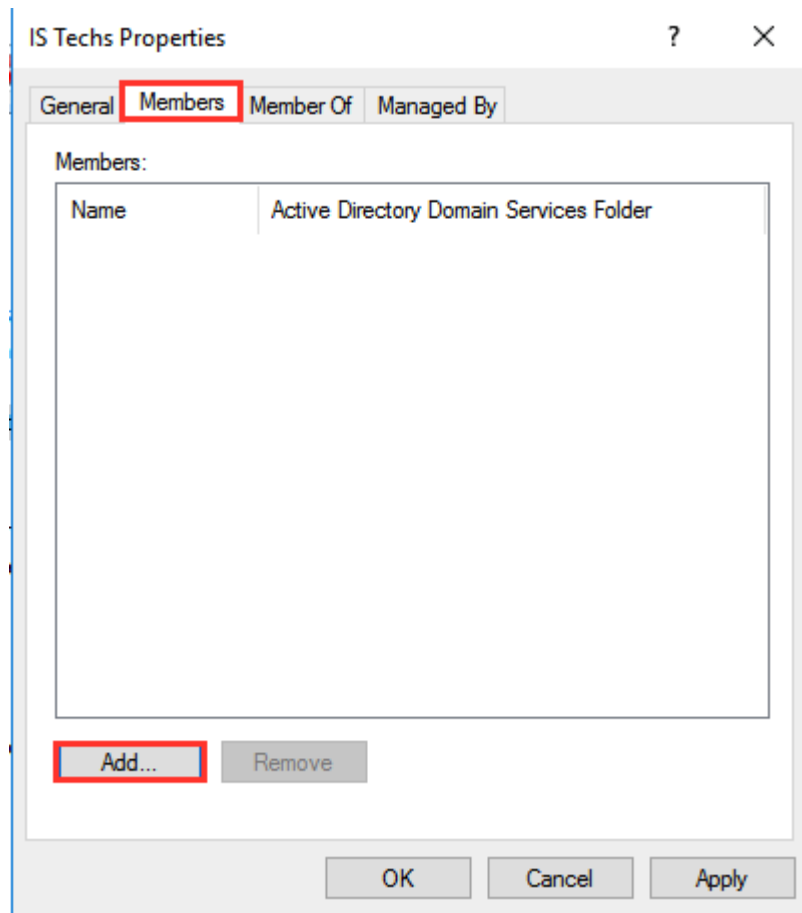


Now that the group is created, let's add a member to it.

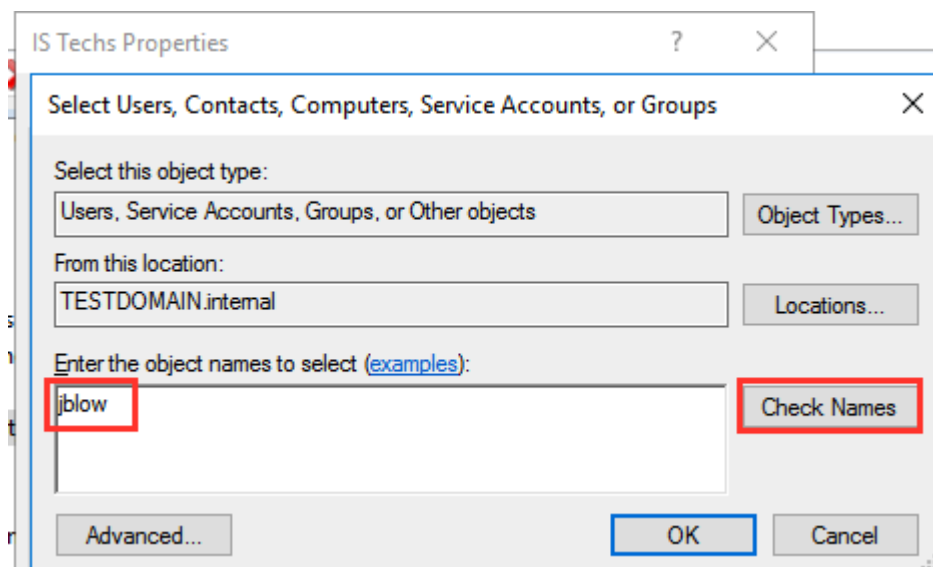
Right-click the IS Techs group and select Properties



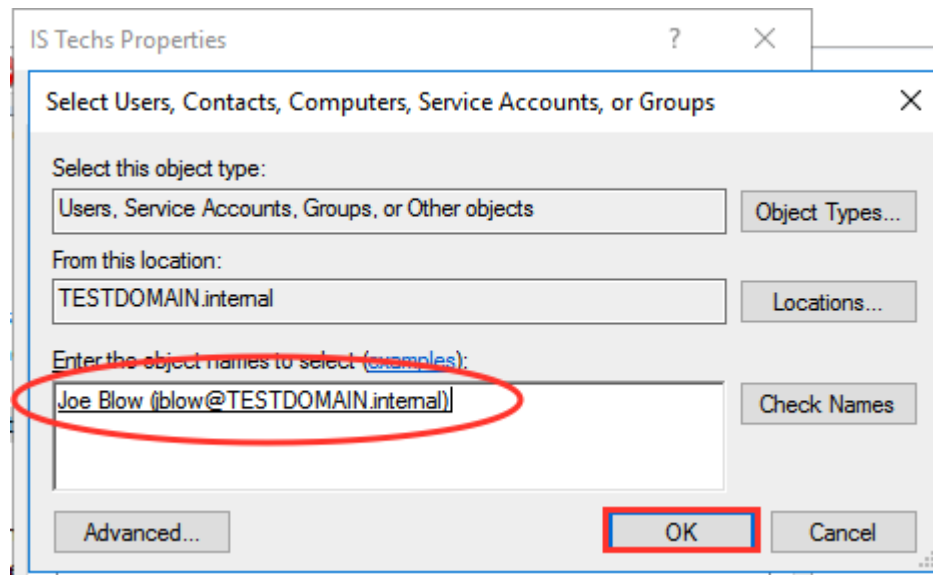
In the Members tab, select Add.



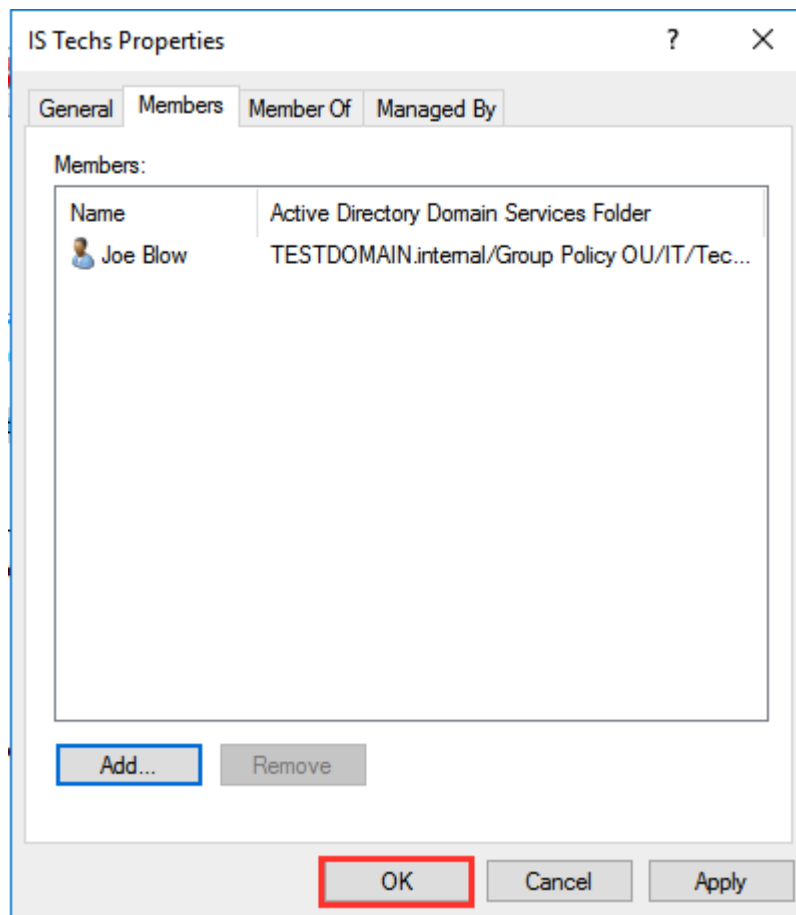
Type the username and select **Check Names**.



When the system finds the account, you will see the full account details. Select **OK**.



Select **OK** when finished adding users to the group.



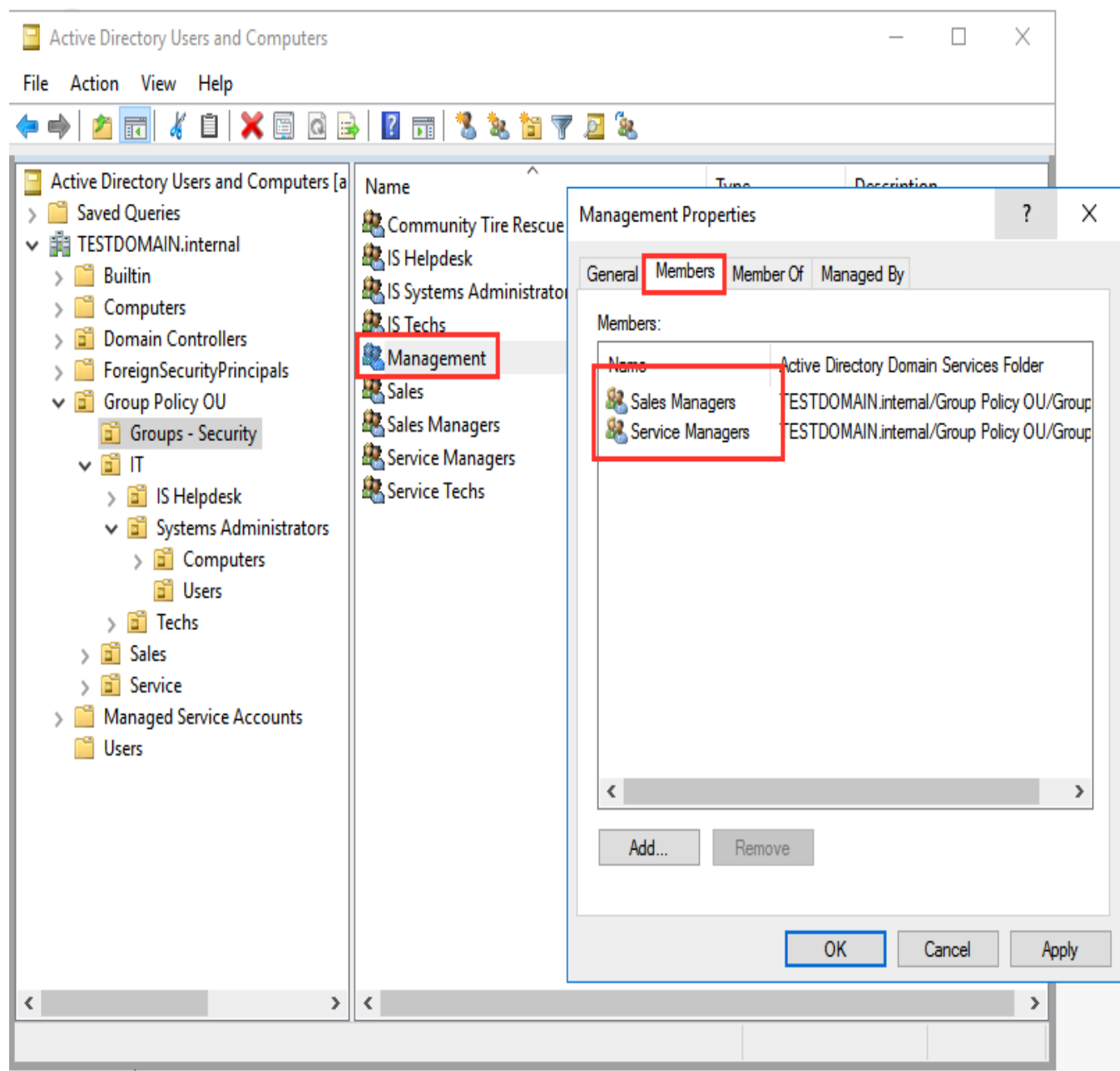
When finished, let's nest a couple of groups within another group.

This example, we have two Managers groups: **Sales** and **Service Managers**. We want to add those groups to a **Management** group.

Right-click the **Management** group and select **Properties**.

In the **Members** tab, click **Add**, type the names of the groups, and add them to the group.

It should look like this:



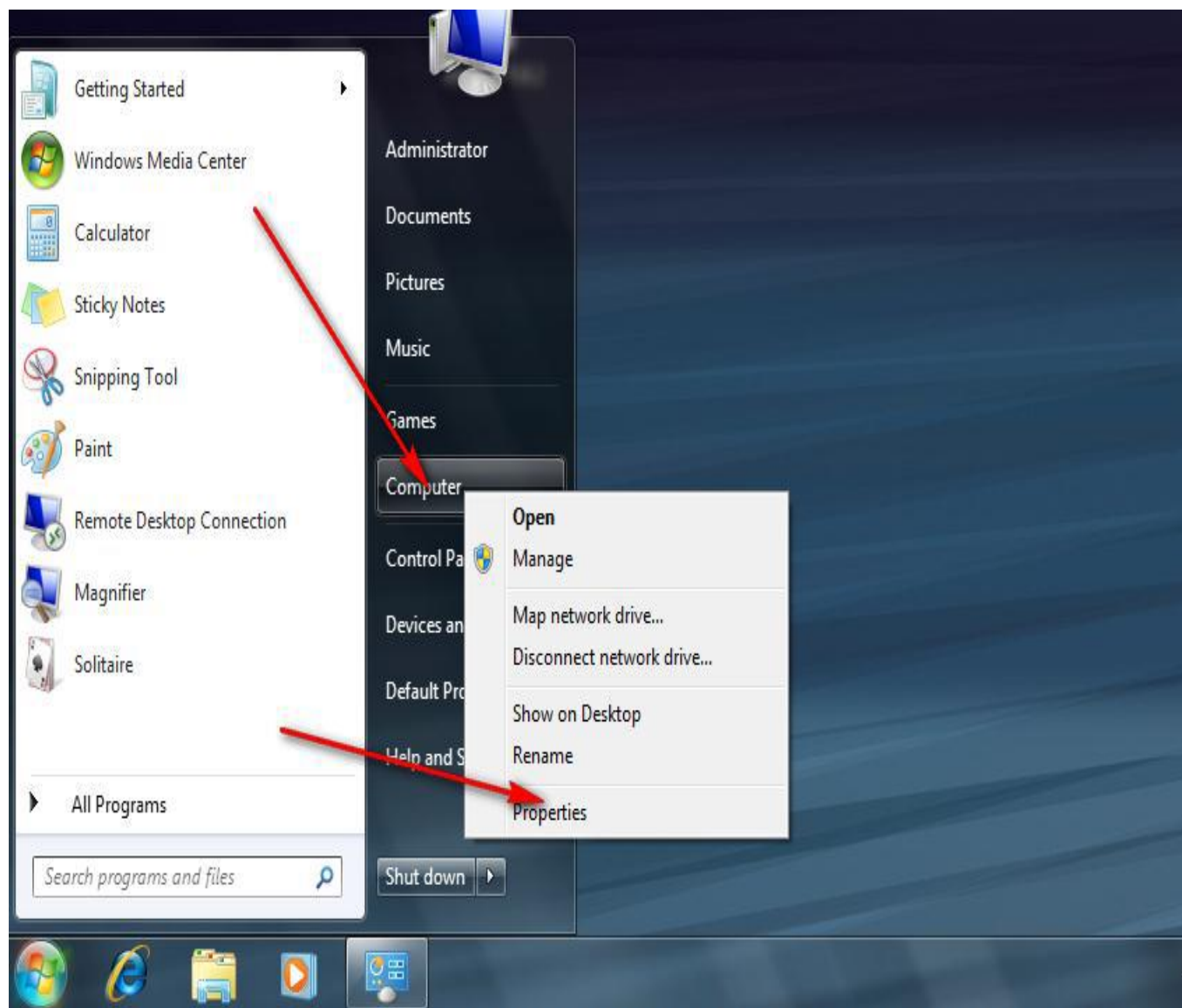
That's it for this one! We have a foundation for our environment! Stay tuned for our next tutorial in the series!

20-Join computers to domain controller

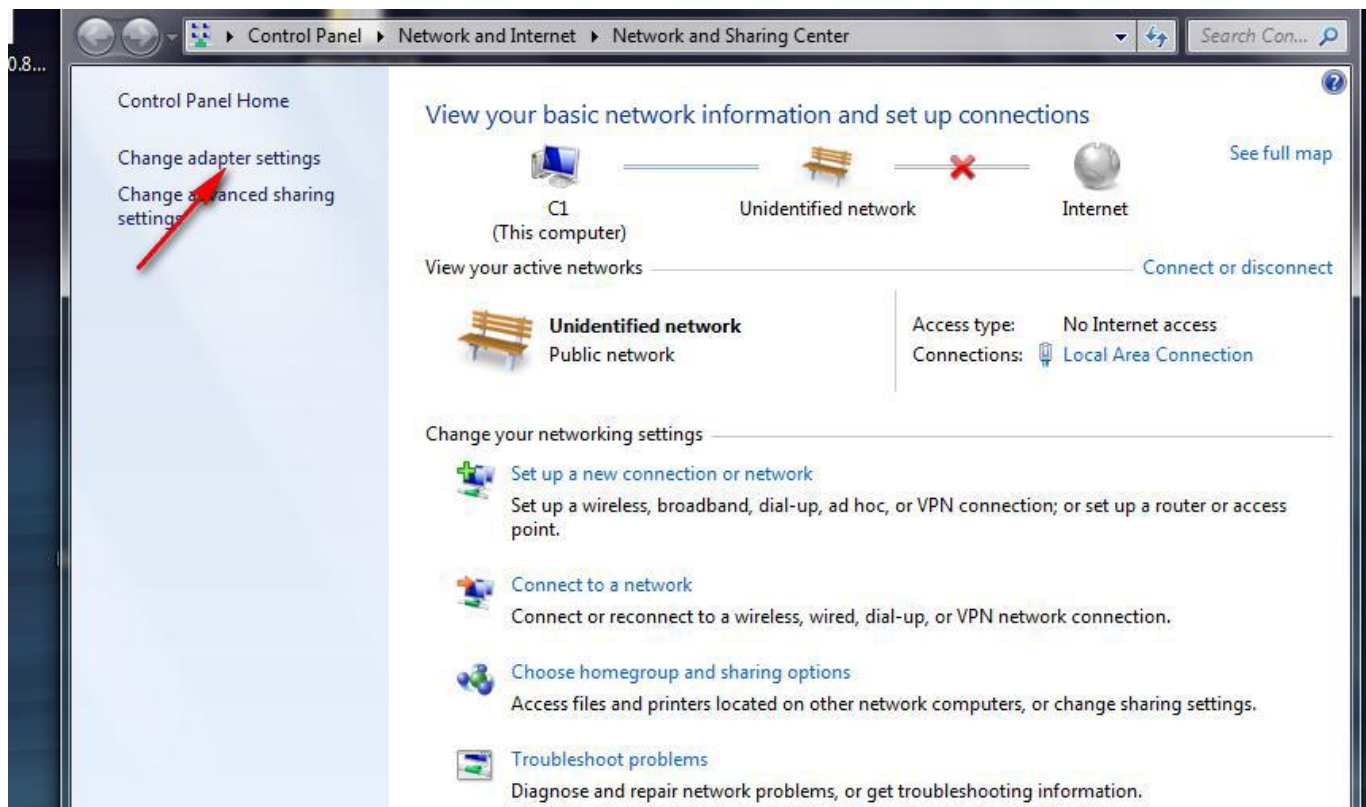
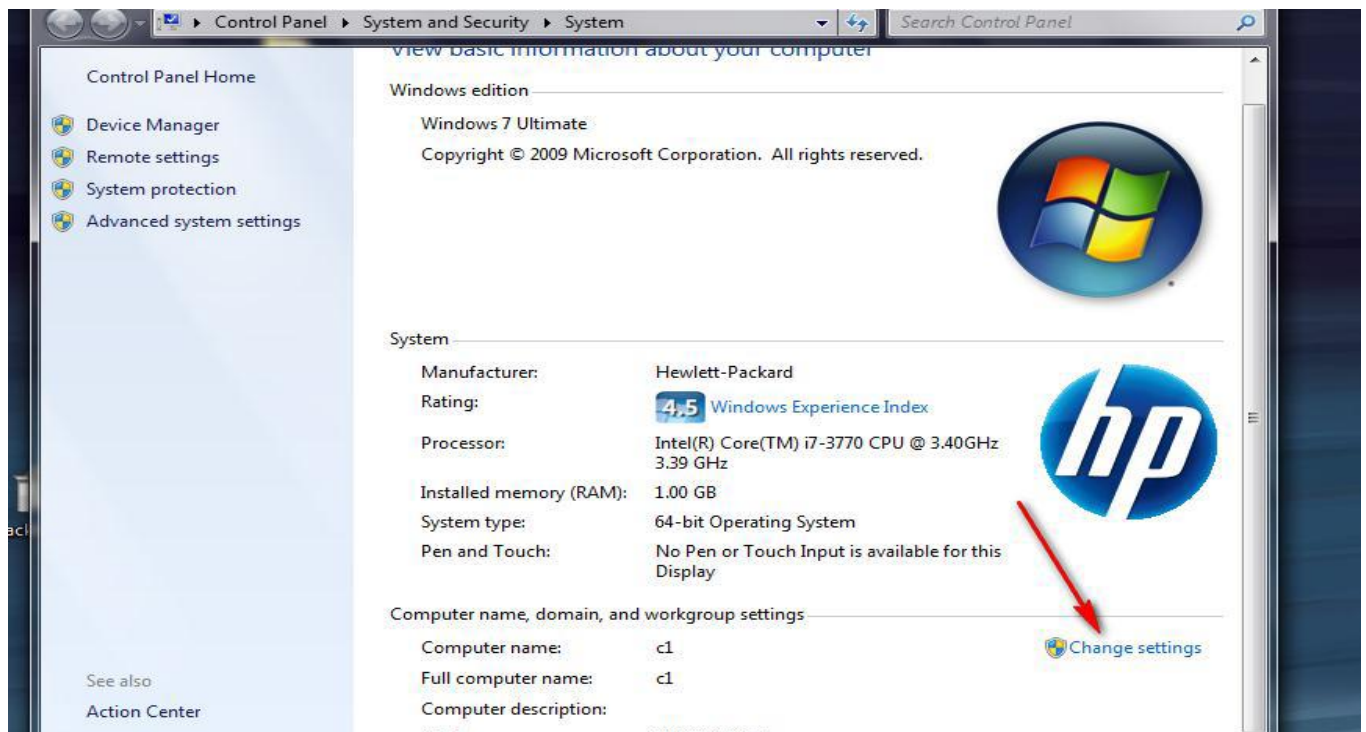
لكي نستطيع التحكم في جميع الأجهزة الموجودة في الشبكة فيجب علينا إضافة جميع الأجهزة داخل الدومين الذي تم إنشائه مسبقا والصور التالي توضيح كيفه إضافة الأجهزة داخل الدومين

Before join computer to domain you have to check connectivity

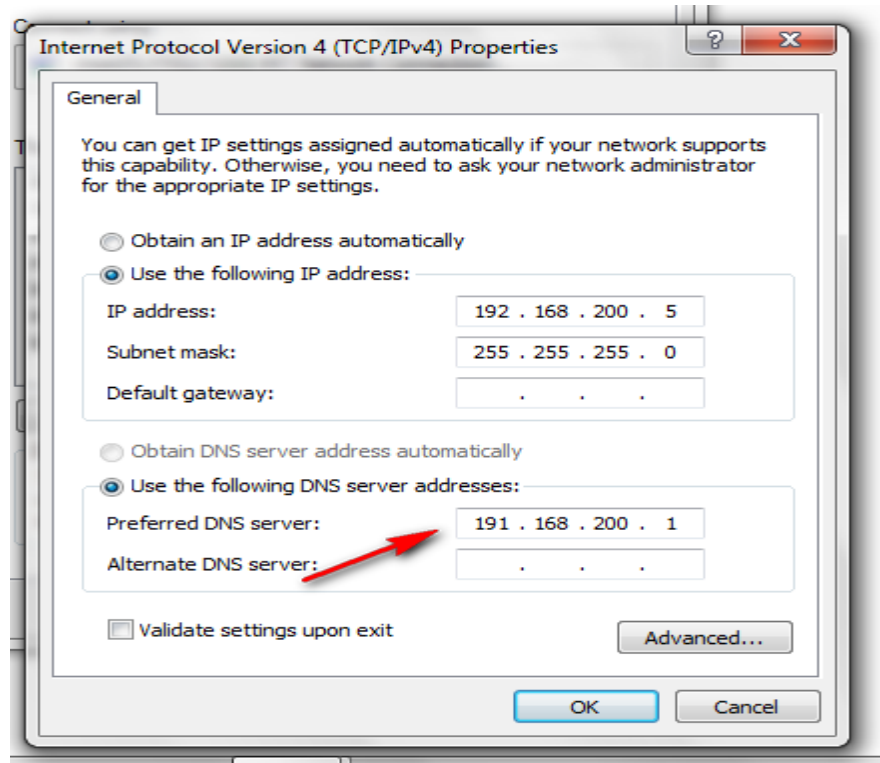
between server and Clint and put DNS on the Clint



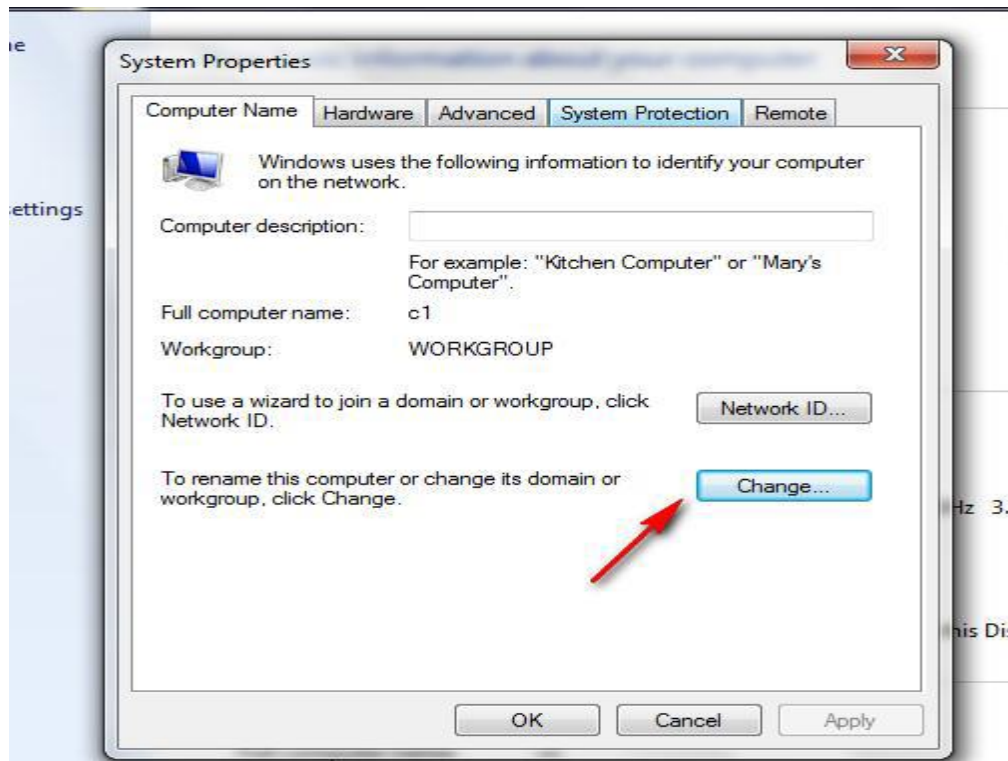
Join computer to domain



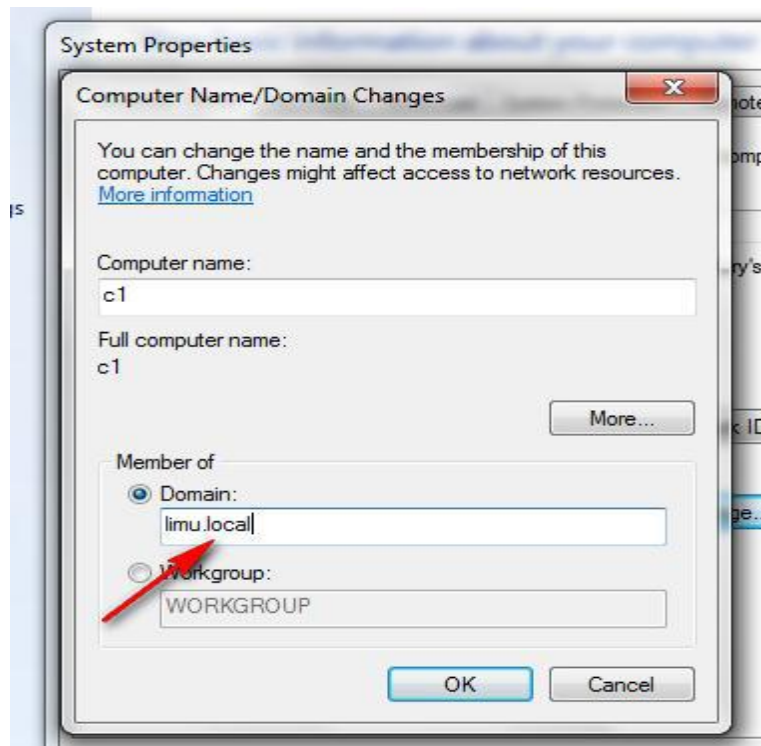
Put the Ip of DNS server



Join computer to domain



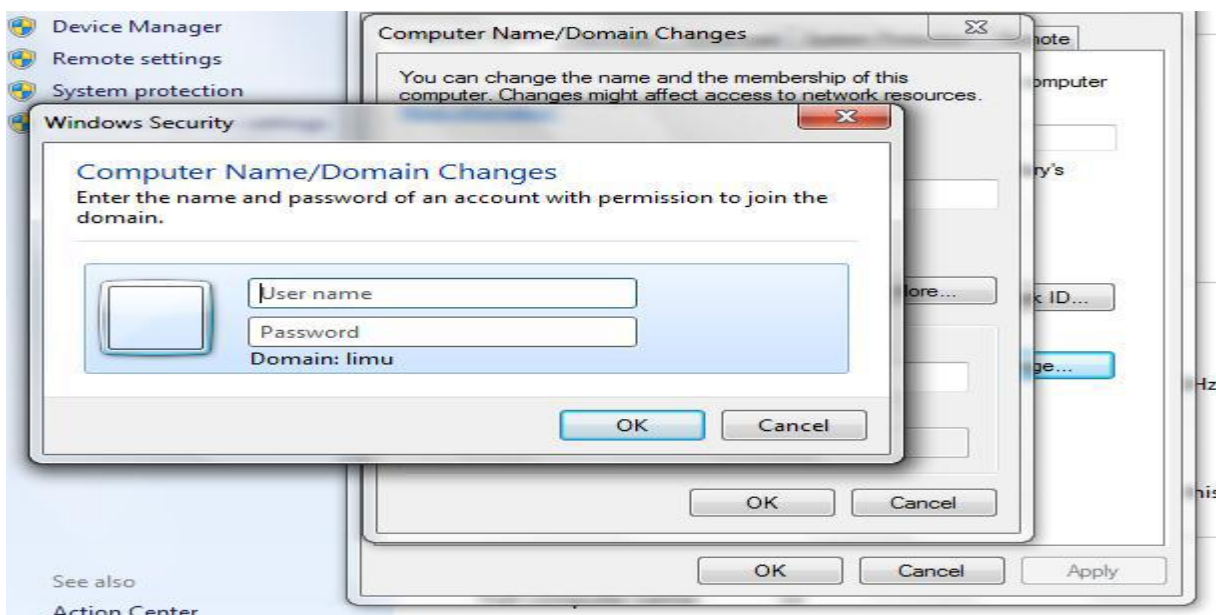
ادخال اسم الدومين



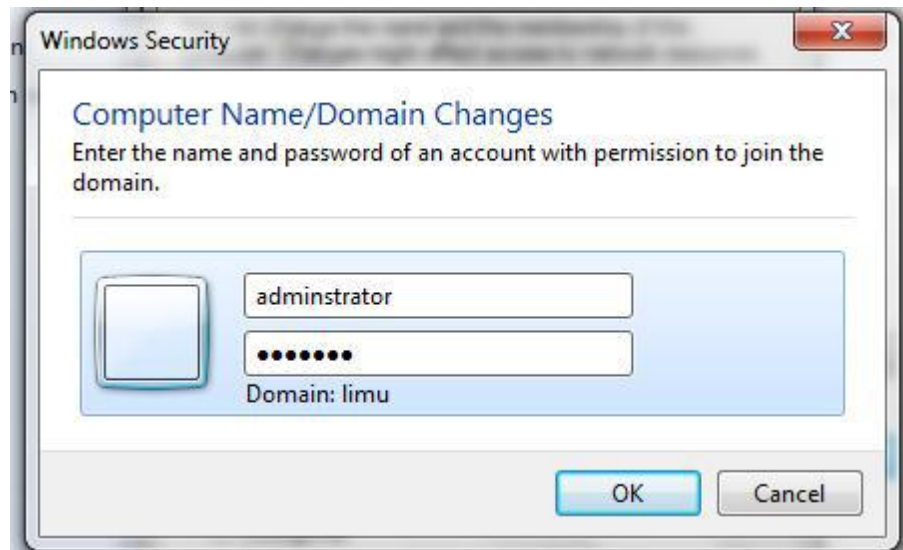
You have to type username and password

that already save in active directory

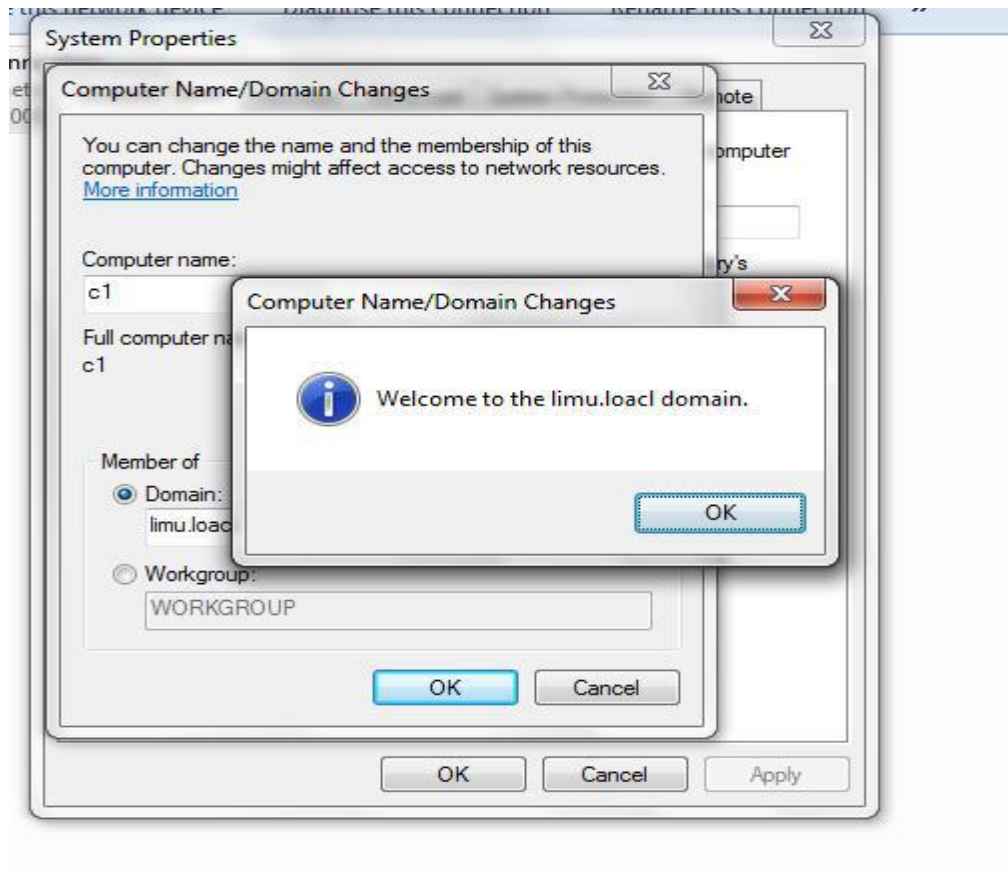
ادخال اسم مستخدم موجود داخل الدومين



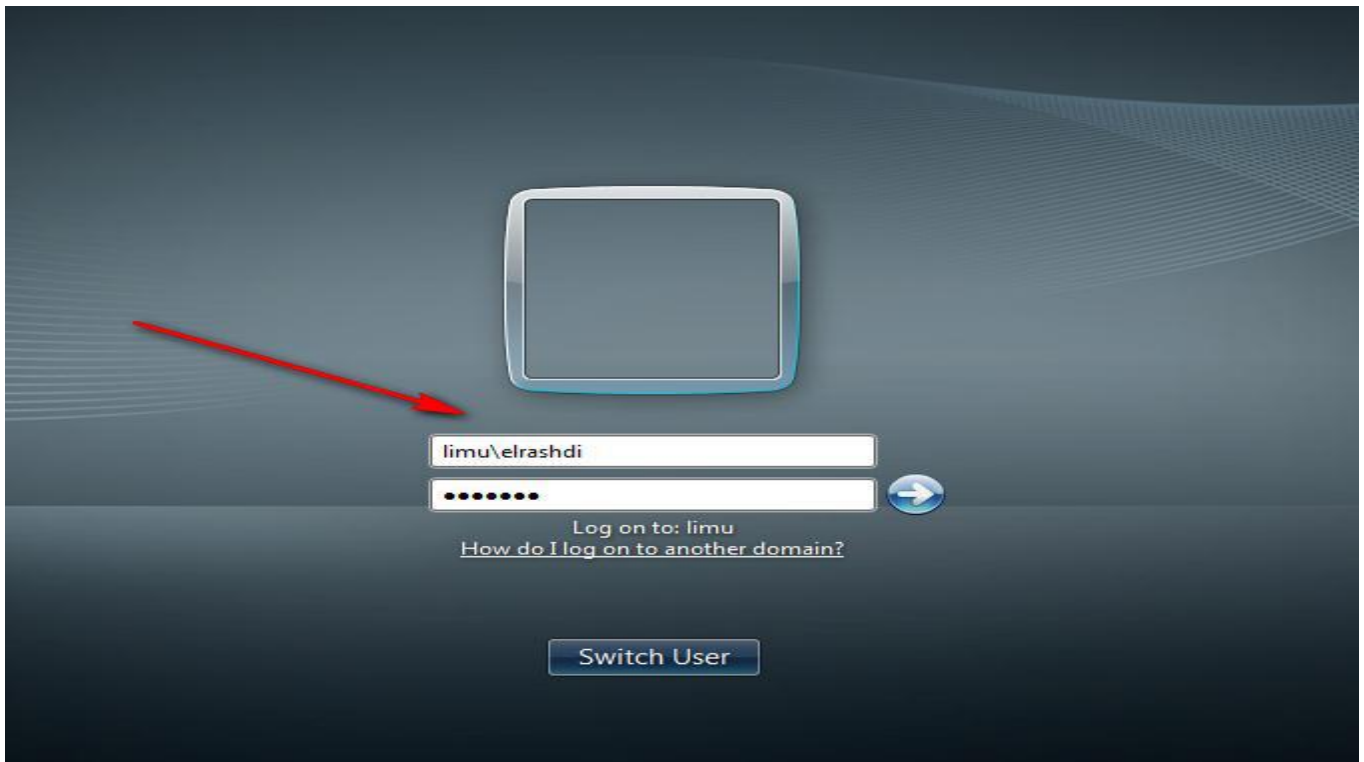
Type username and password



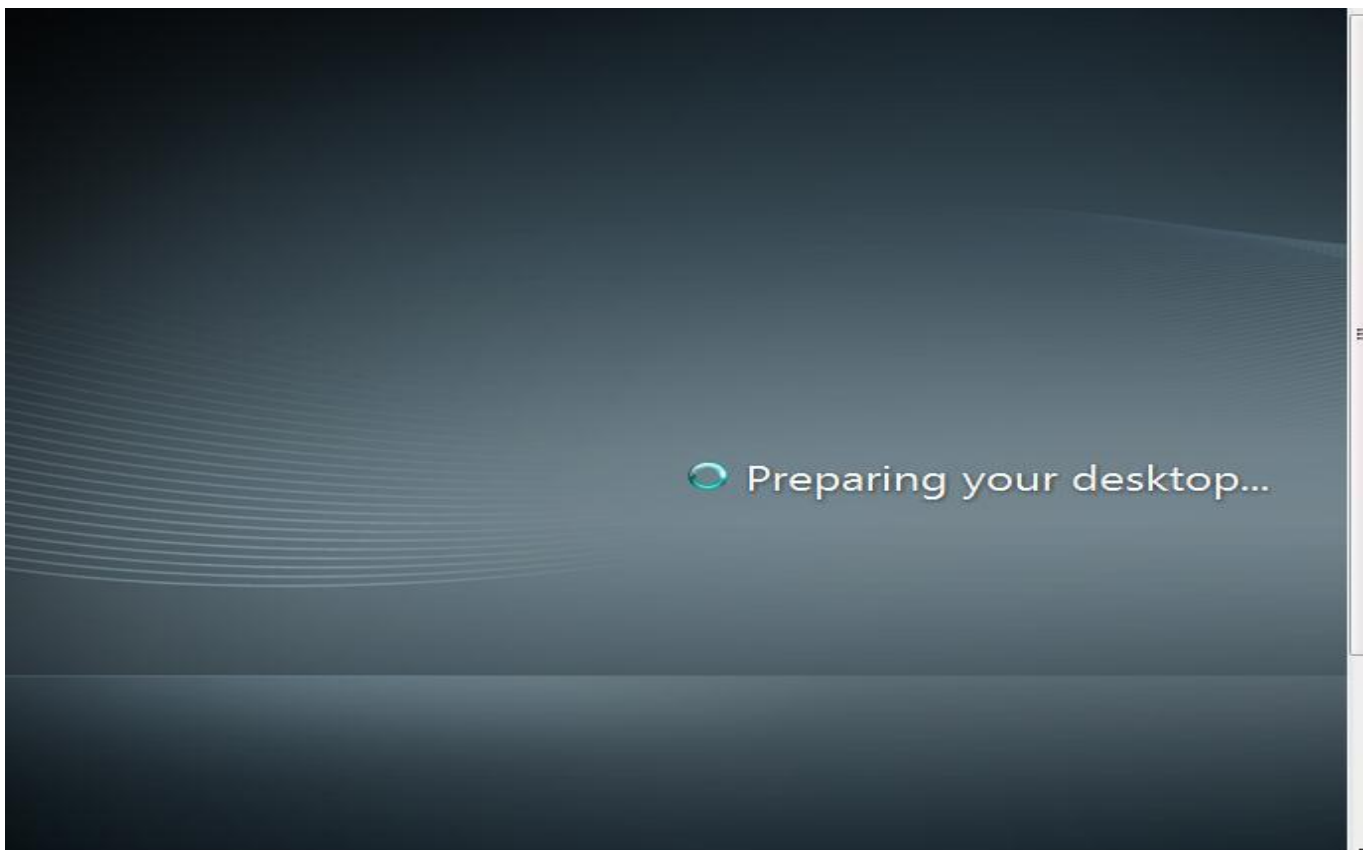
Now computer is joined



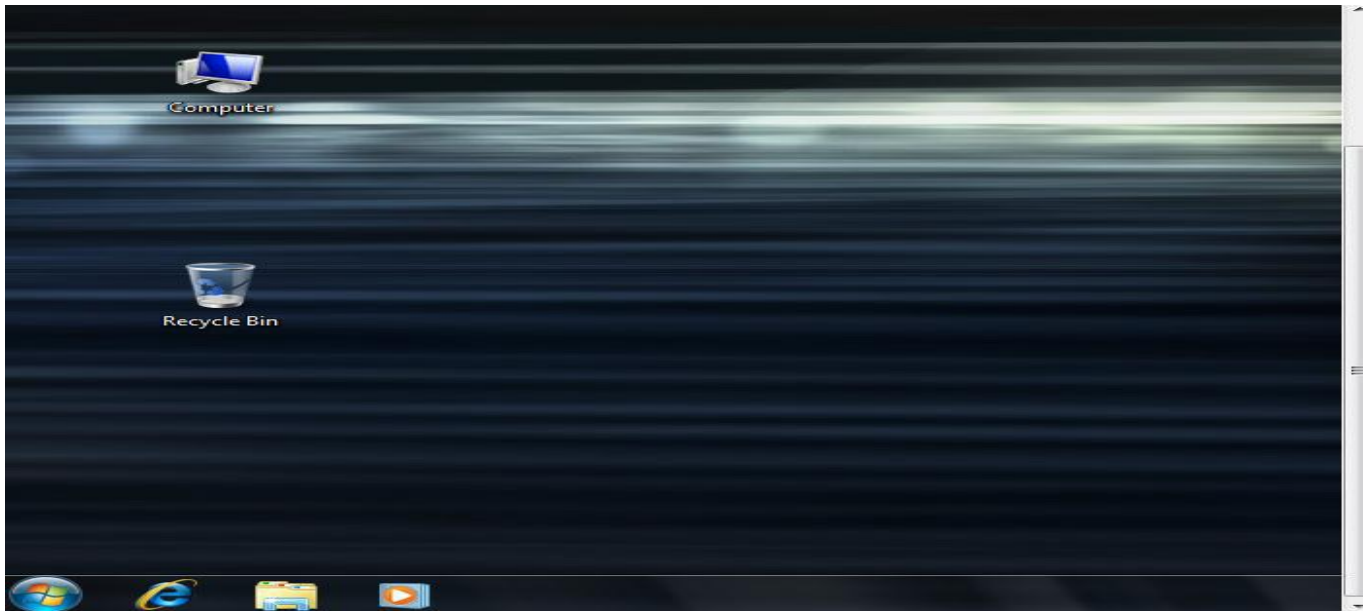
After restart the computer you have type limu\ then an username and password to login



Now preparing the desktop



Now preparing the desktop

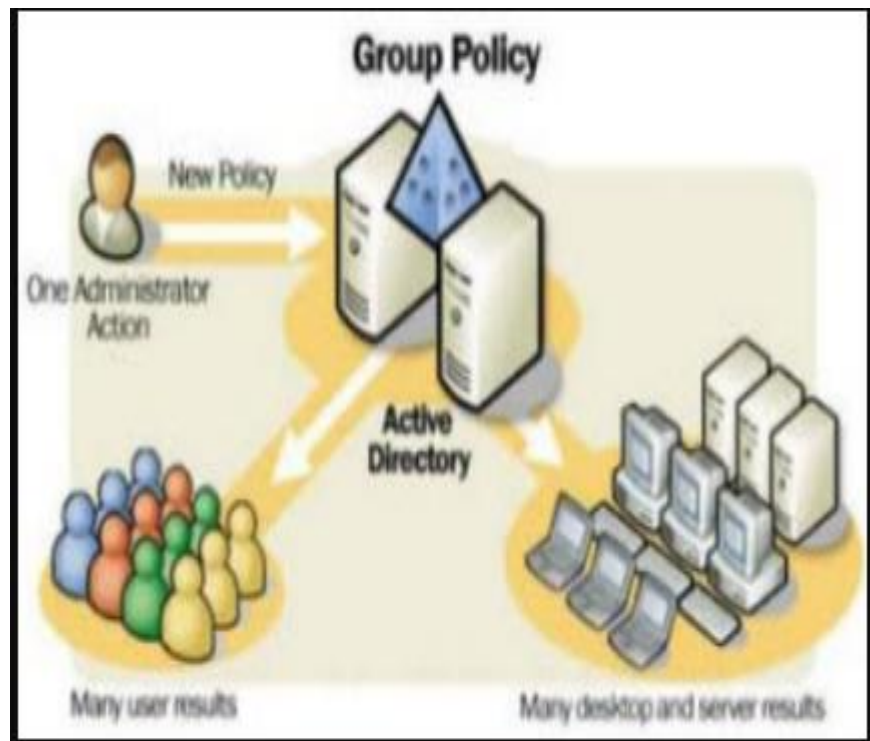


21-Group policy in windows server

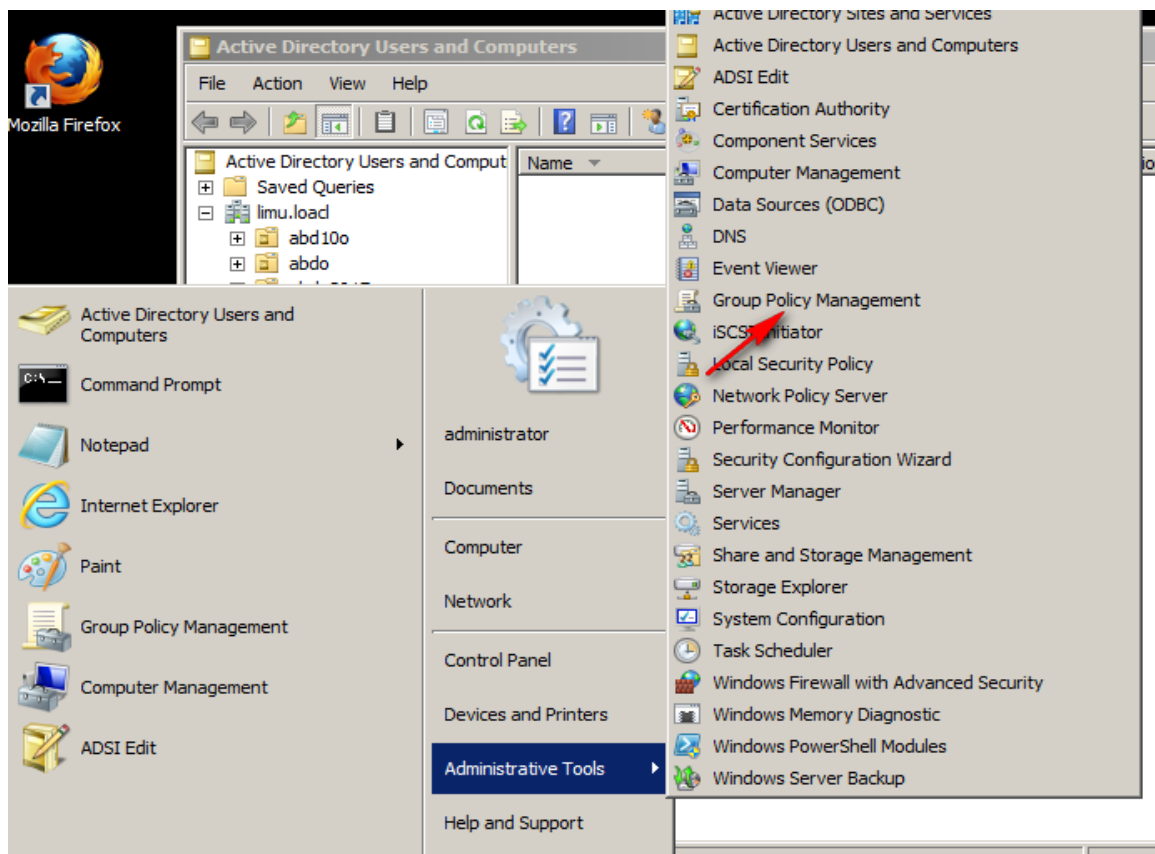
بكل بساطة هي عبارة عن اداة تنشيء من خلالها قواعد تتيح التحكم في المستخدمين والموارد والاتصال بحيث تمنع او تسمح بناء على ما يريده مدير النظام. مثلا اريد ان اسمح للمستخدم بالوصول الى الاقراص الصلبة وامنع غيره من ذلك واسمح للمستخدم بتغير خلفية سطح المكتب وامنع باقي المستخدمين، واسمح للمستخدم ومشاركة والوصول الى الملفات المشتركة وامنع غيره الخ....

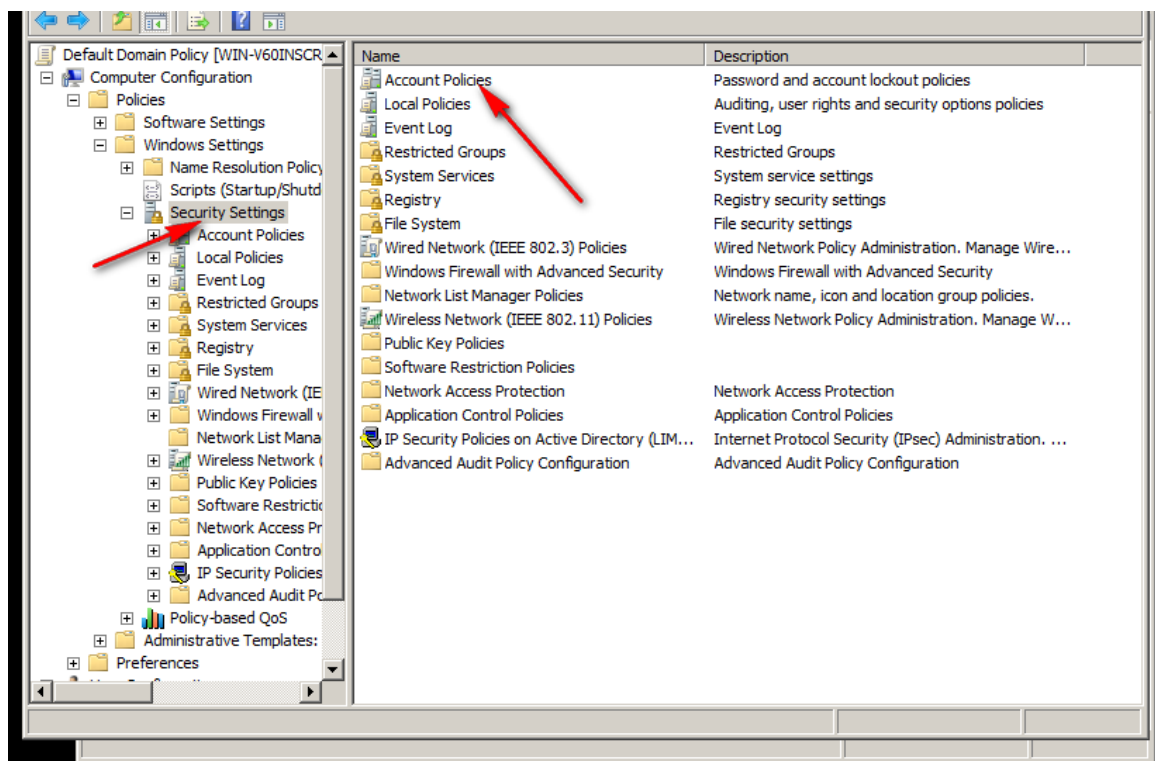
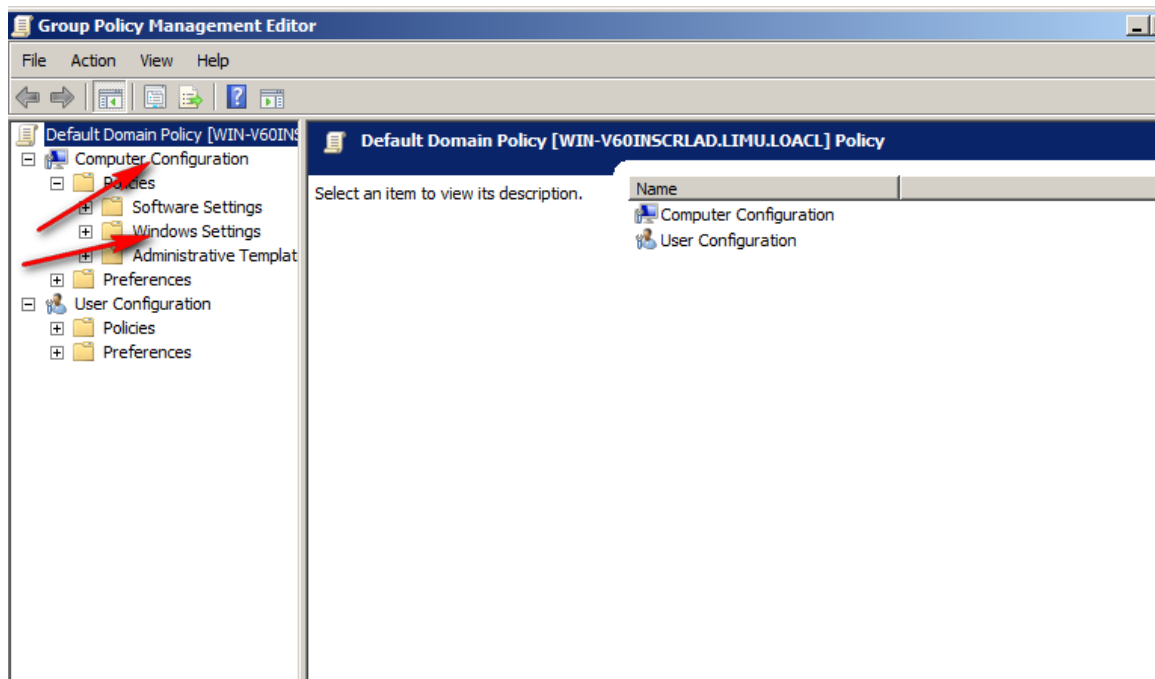
Group Policy is a hierarchical infrastructure that allows a network administrator in charge of Microsoft's Active Directory to implement specific configurations for users and computers. Group Policy can also be used to define user, security and networking policies at the machine level.

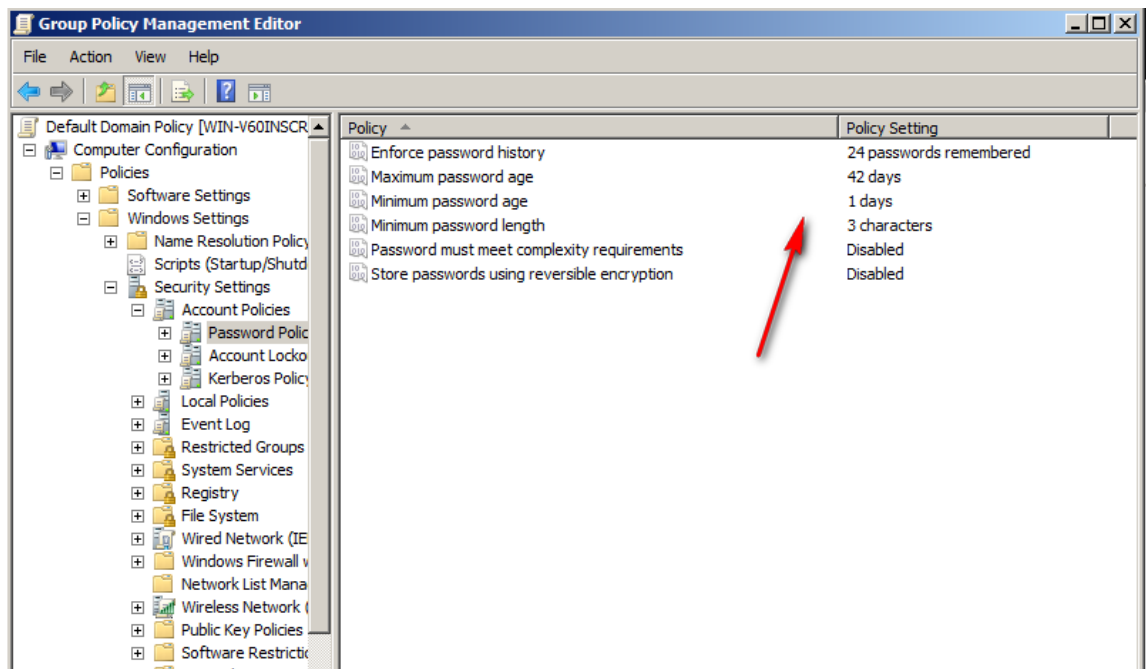
Group Policy is a feature of the Microsoft Windows NT family of operating systems that controls the working environment of user accounts and computer accounts. Group Policy provides centralized management and configuration of operating systems, applications, and users' settings in an Active Directory environment. A version of Group Policy called Local Group Policy ("LGPO" or "LocalGPO") also allows Group Policy Object management on standalone and non-domain computers.



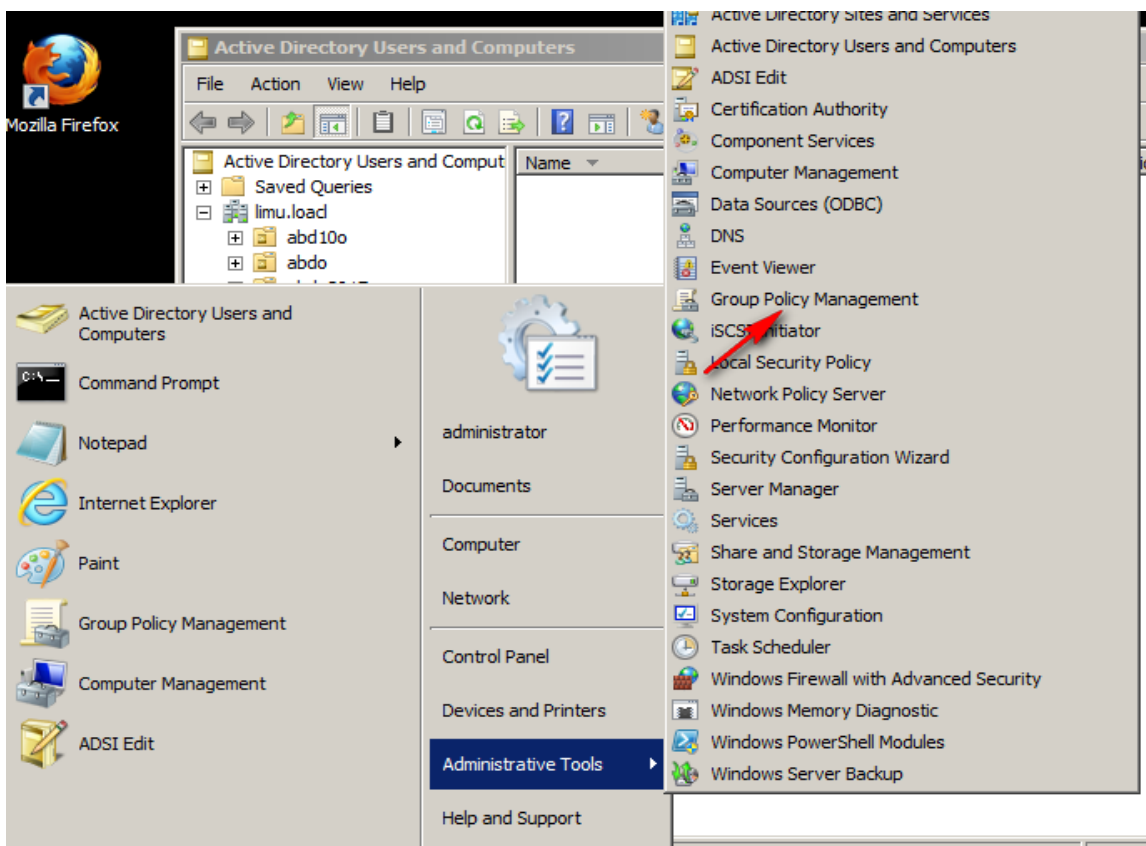
21.1- Apply Password policy in window server 2008

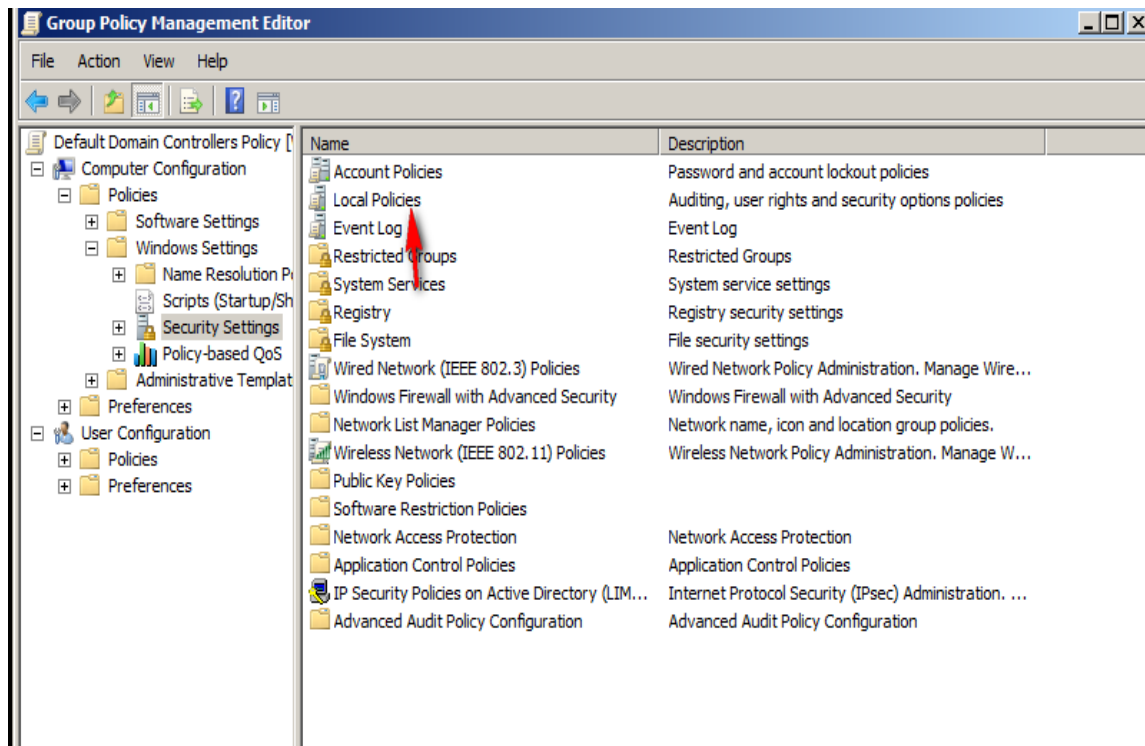
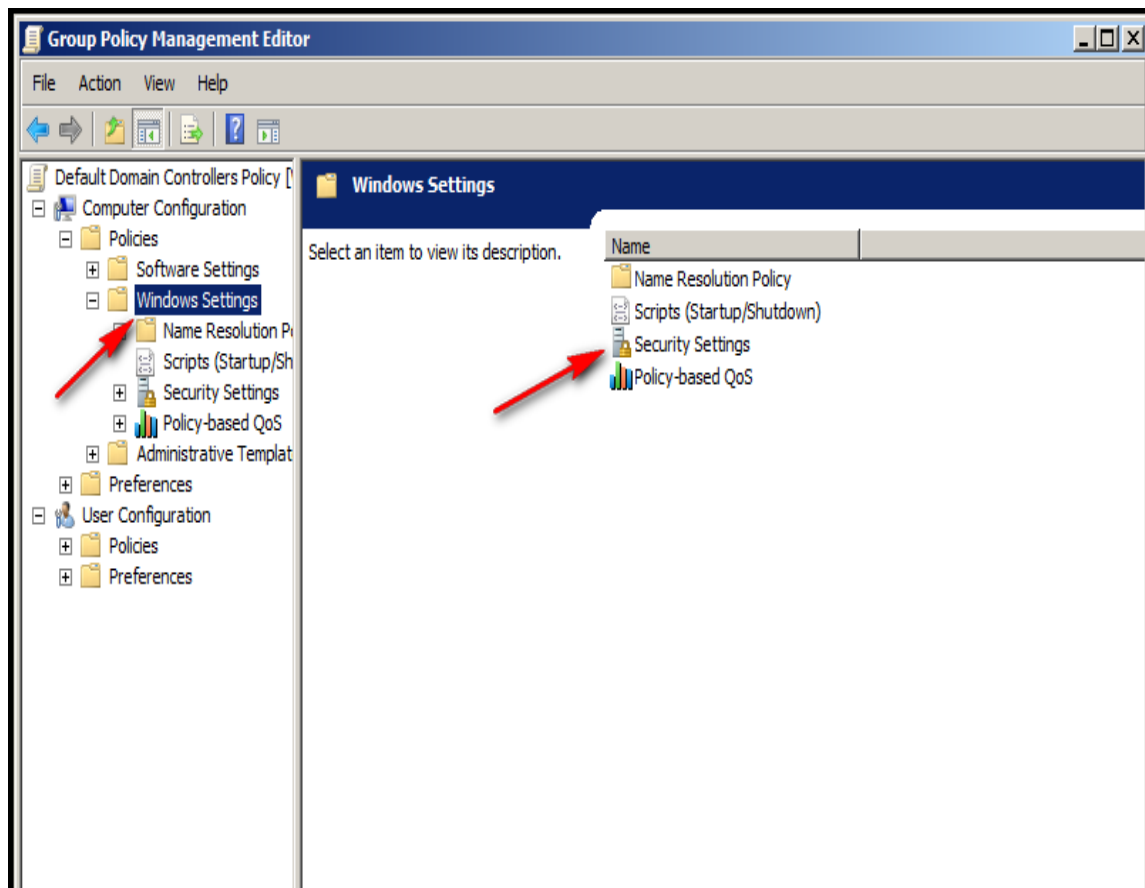


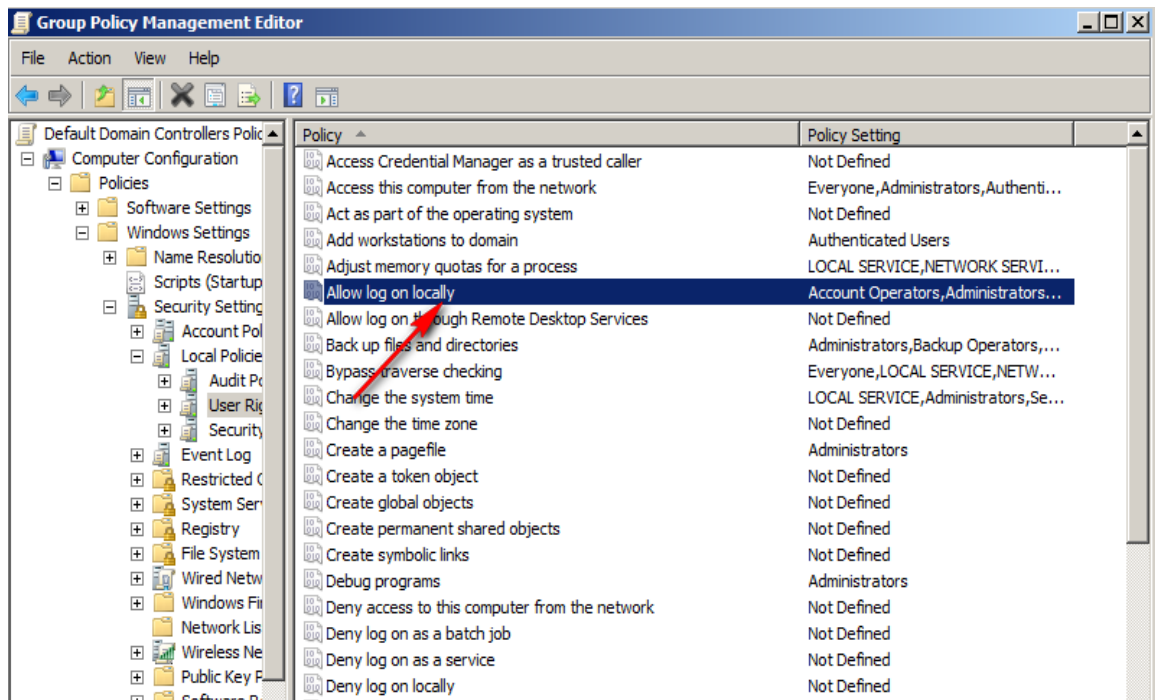
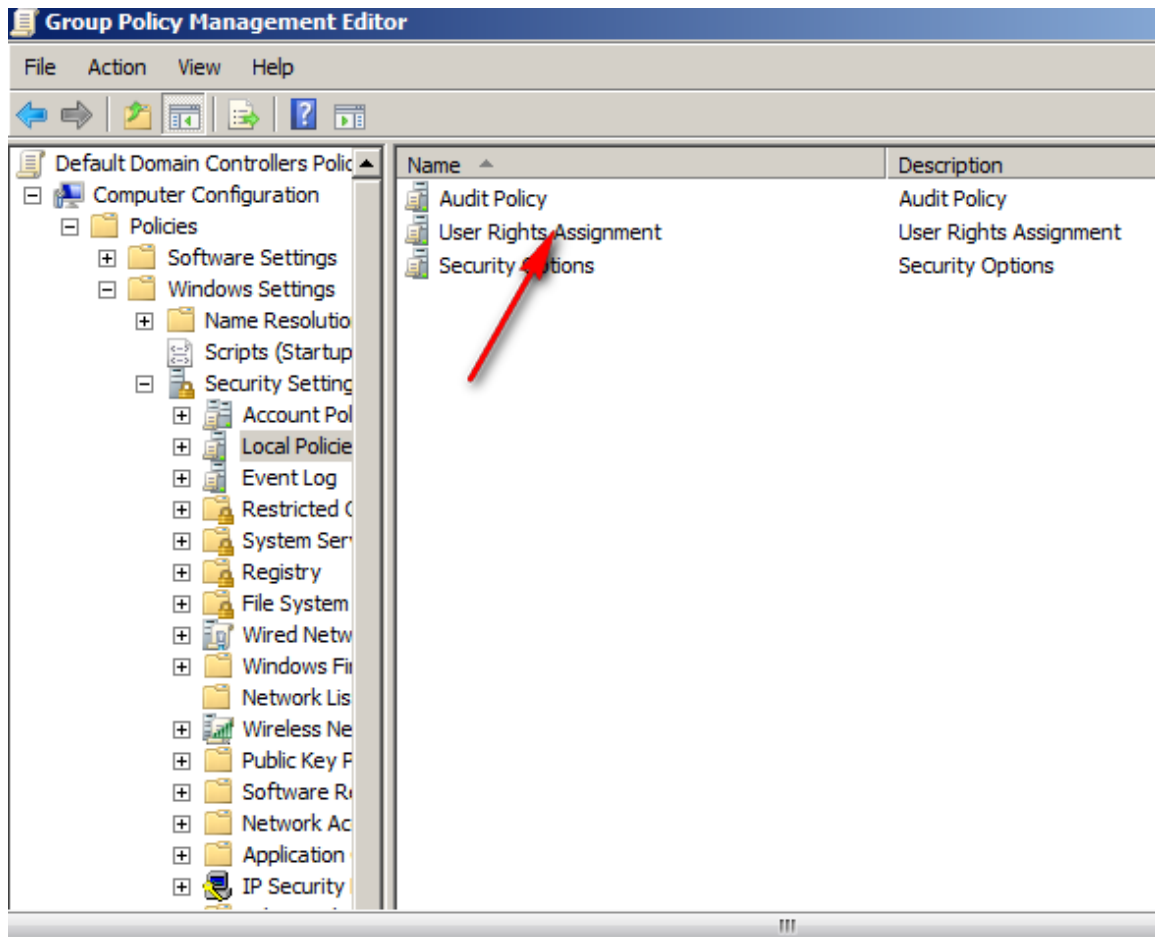


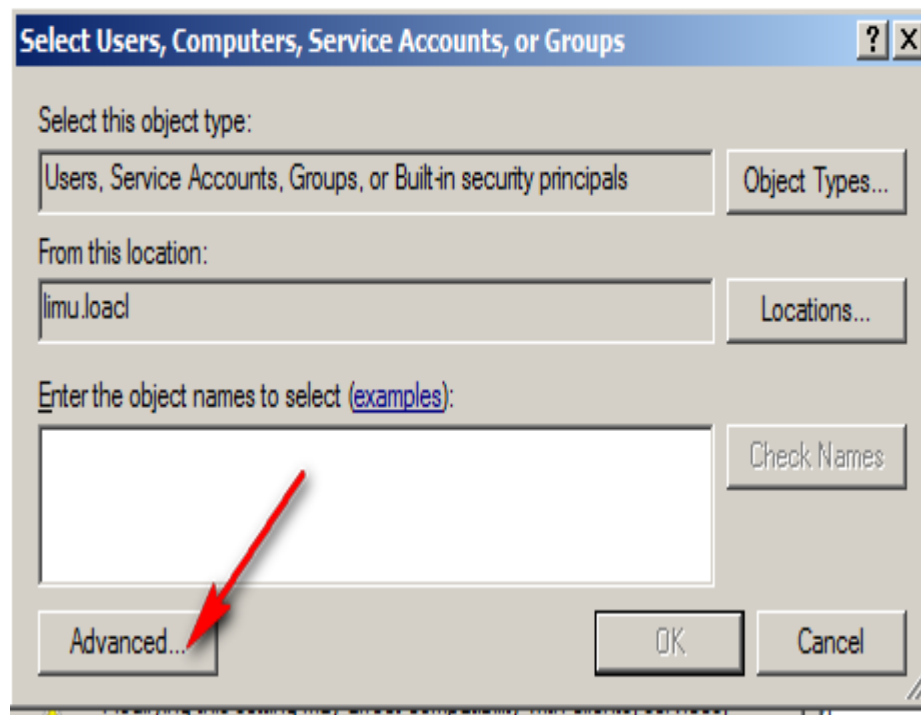
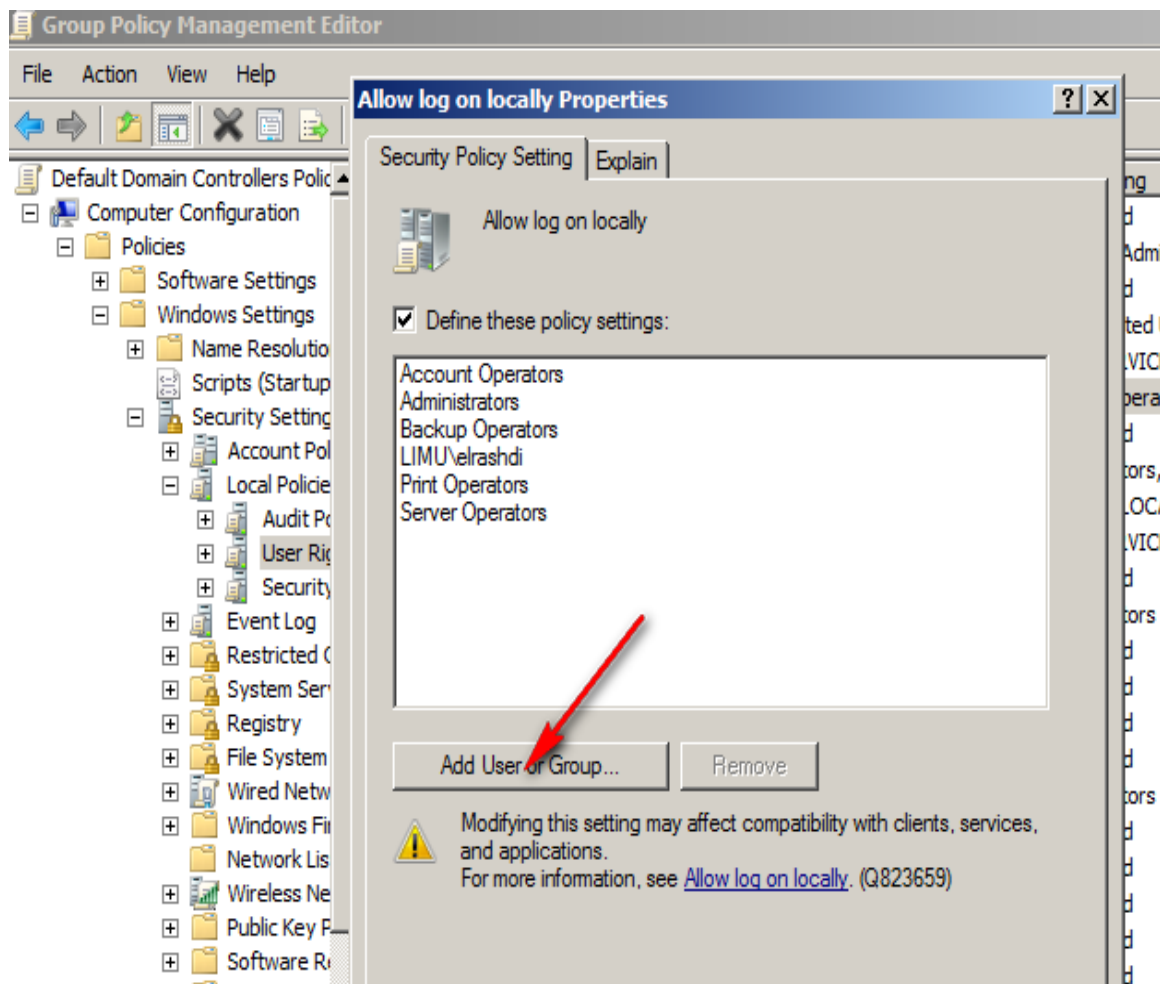


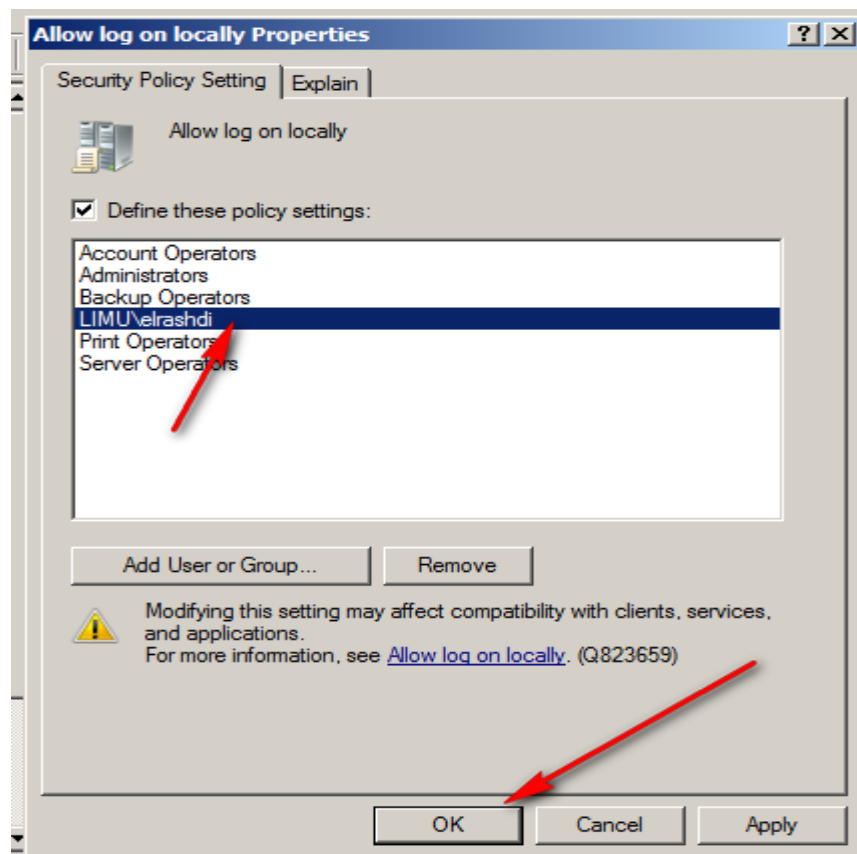
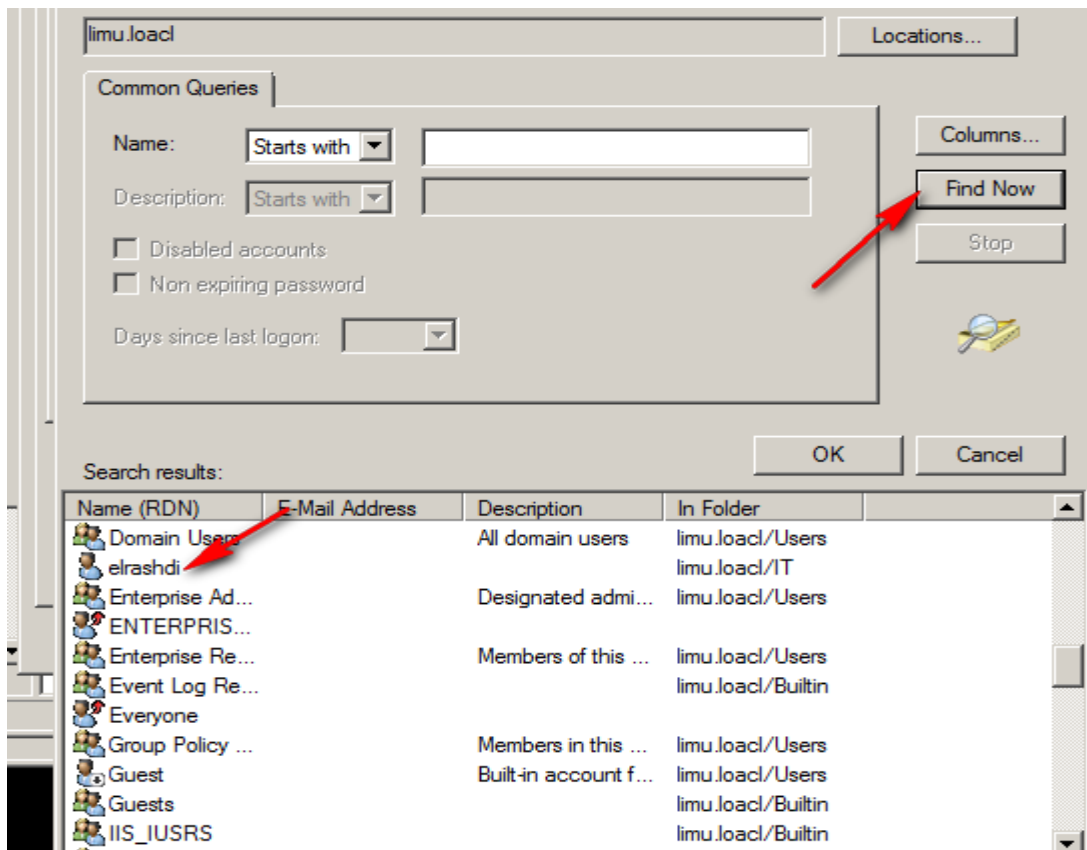
21.2- Allow user to connect locally on domain controller







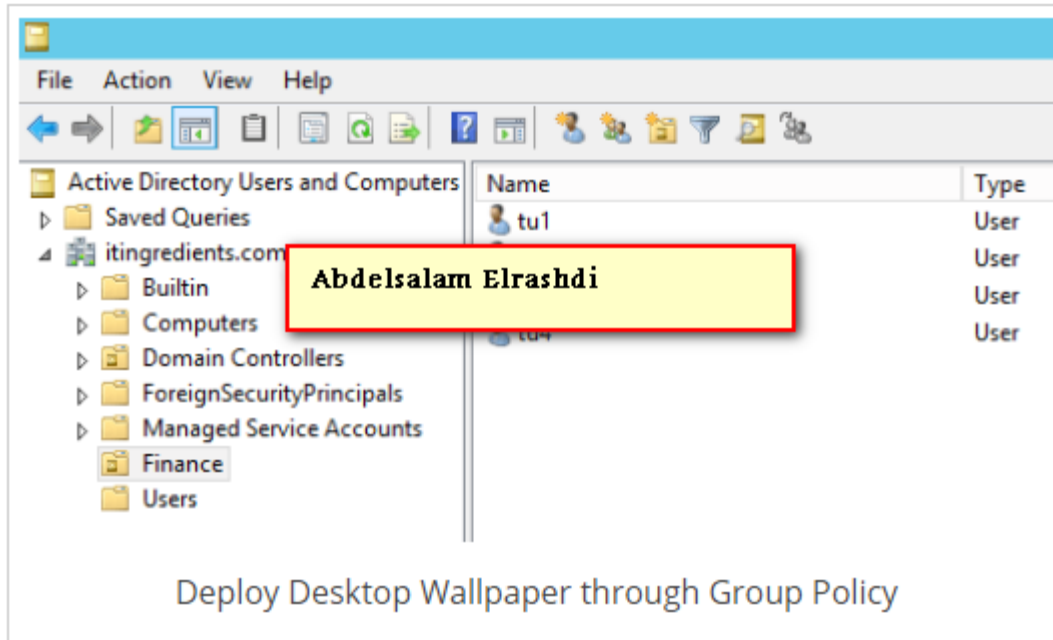




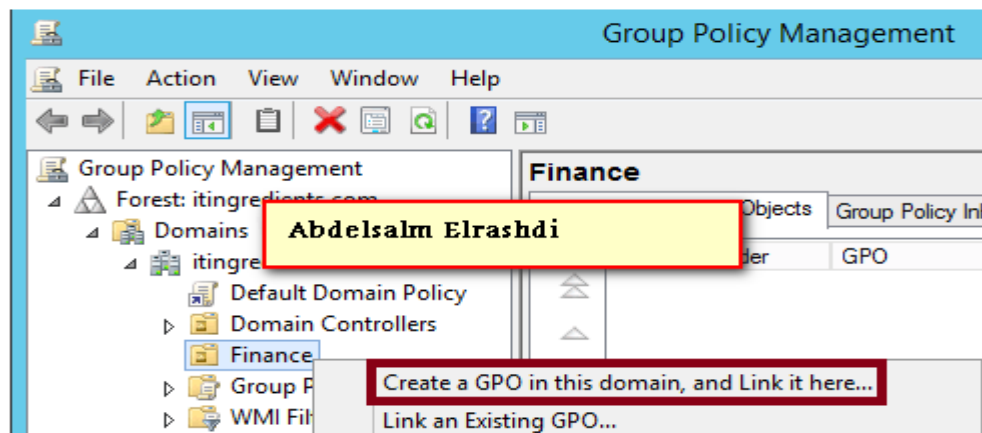
21.3- Change Desktop Wallpaper by Group Policy in Server 2012 R2

تغير خلفية سطح المكتب عن طريق القروب بولسي

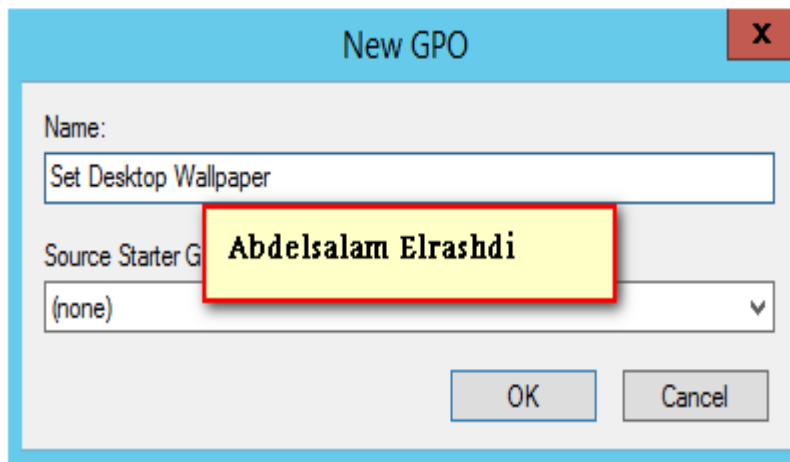
We have created an Organizational Unit (OU) naming “Finance” and added some users in the OU



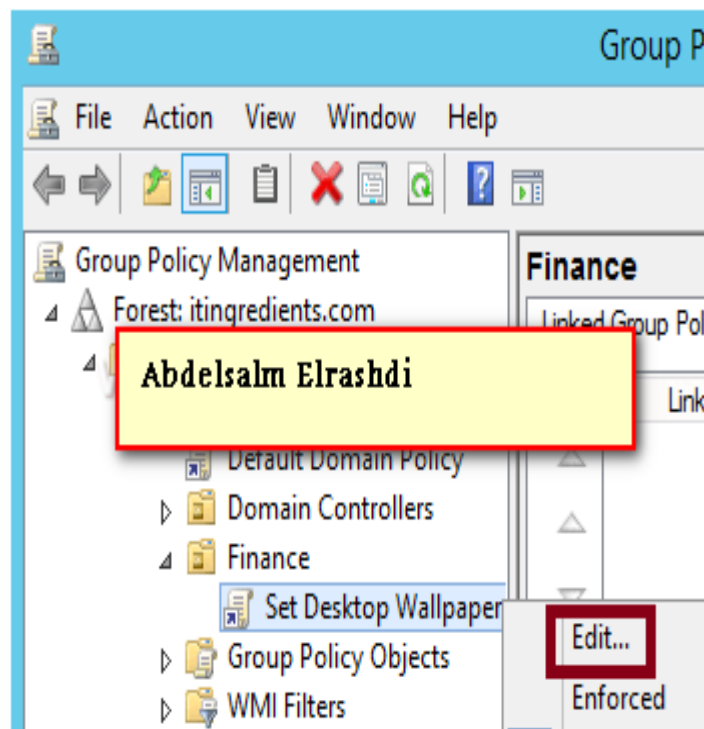
Open GPMC (Group Policy Management Console), right click on the OU “Finance” and then click on “Create a GPO in this domain, and Link it here”



On New GPO console, enter the name of group policy object. In this practical, the name of our GPO is “Set Desktop Wallpaper“. Click on Ok.

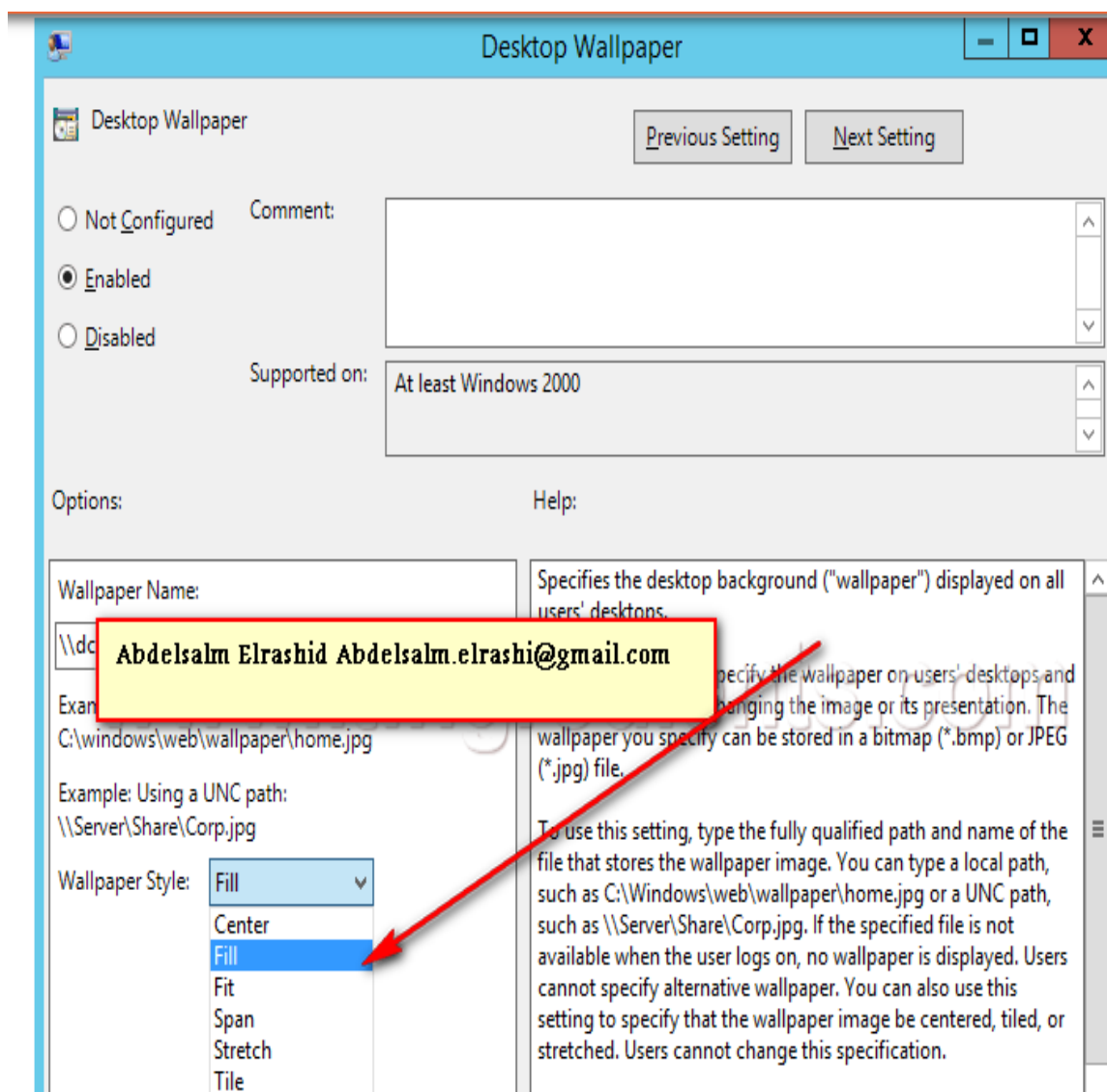


To deploy desktop wallpaper through Group Policy, right click on the GPO “Set Desktop Wallpaper” and click on “Edit” to modify the GPO settings. Default Group Policy Objects are blank templates, we have to define the policy to make it work.



To Set Desktop Wallpaper via Group Policy, on Group Policy Management Editor Console, under User Configuration expand Policies then expand Administrative Templates. Under Desktop, click on Desktop to expand all policies. Now double click on Desktop Wallpaper to open its settings.

Under Desktop wallpaper console, we have to give the fully qualified path and name of the file that stores the wallpaper image. If the specified file is not available when the user logs on, no wallpaper is displayed. Moreover, users cannot specify alternative wallpaper. Select Enabled to enable the policy and specify the UNC path \\dc01\share\wallpapers\wall01.jpg. You can also use the setting to specify that the wallpaper image be centered, tiled, or stretched. Users cannot change this specification.



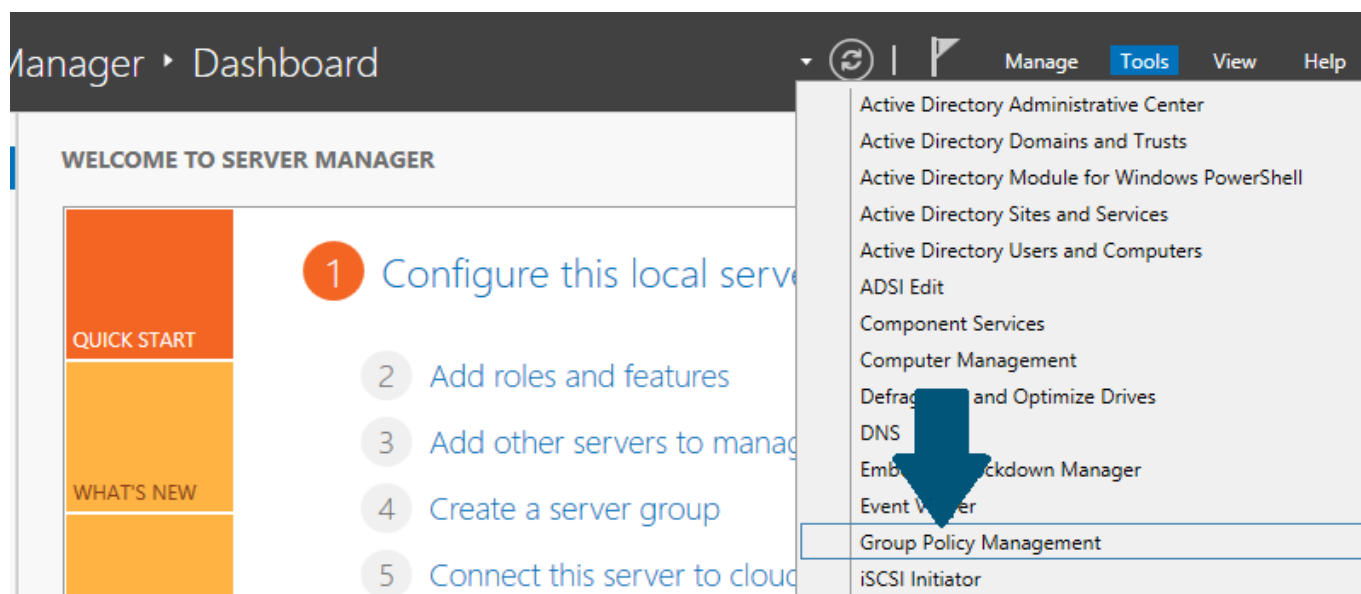
Now go to the client machine and login with the Domain User. You can see new Desktop Wallpaper would be deployed for the all the users created in Finance OU.

21.4- Hide C Drive Using Group Policies in Active Directory on Windows Server 2012 R2

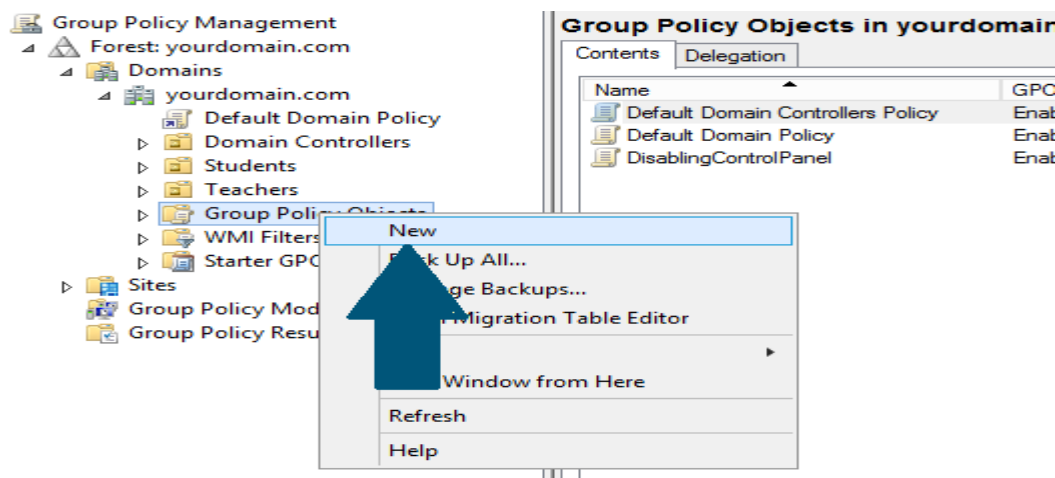
إخفاء القرص الصلب C على جهاز معين

Creating a Group Policy Object

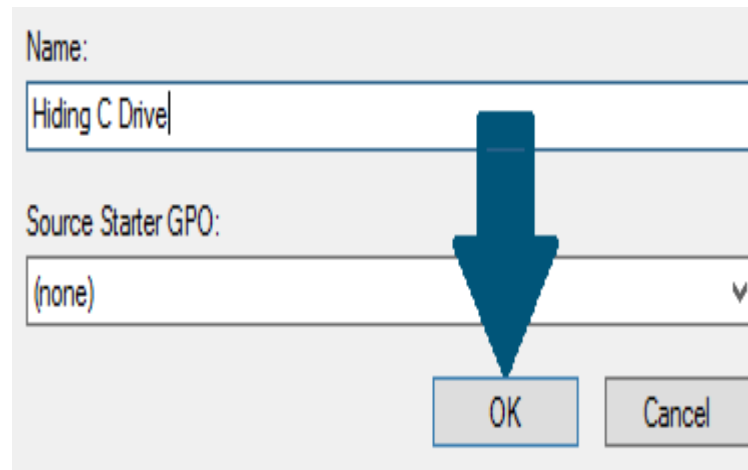
Open server manager dashboard and click **Group Policy Management**.



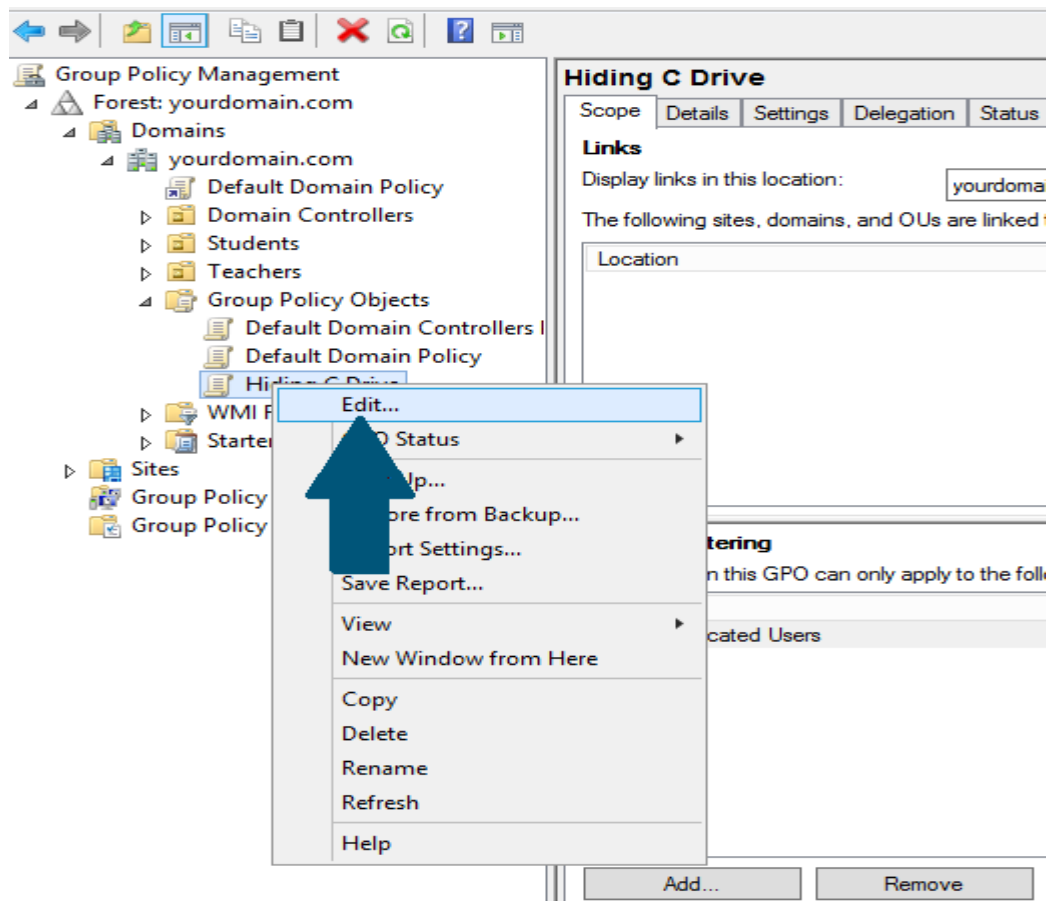
Expand the Tree: <domain name> node and right-click **Group Policy Objects**. Click **New**.



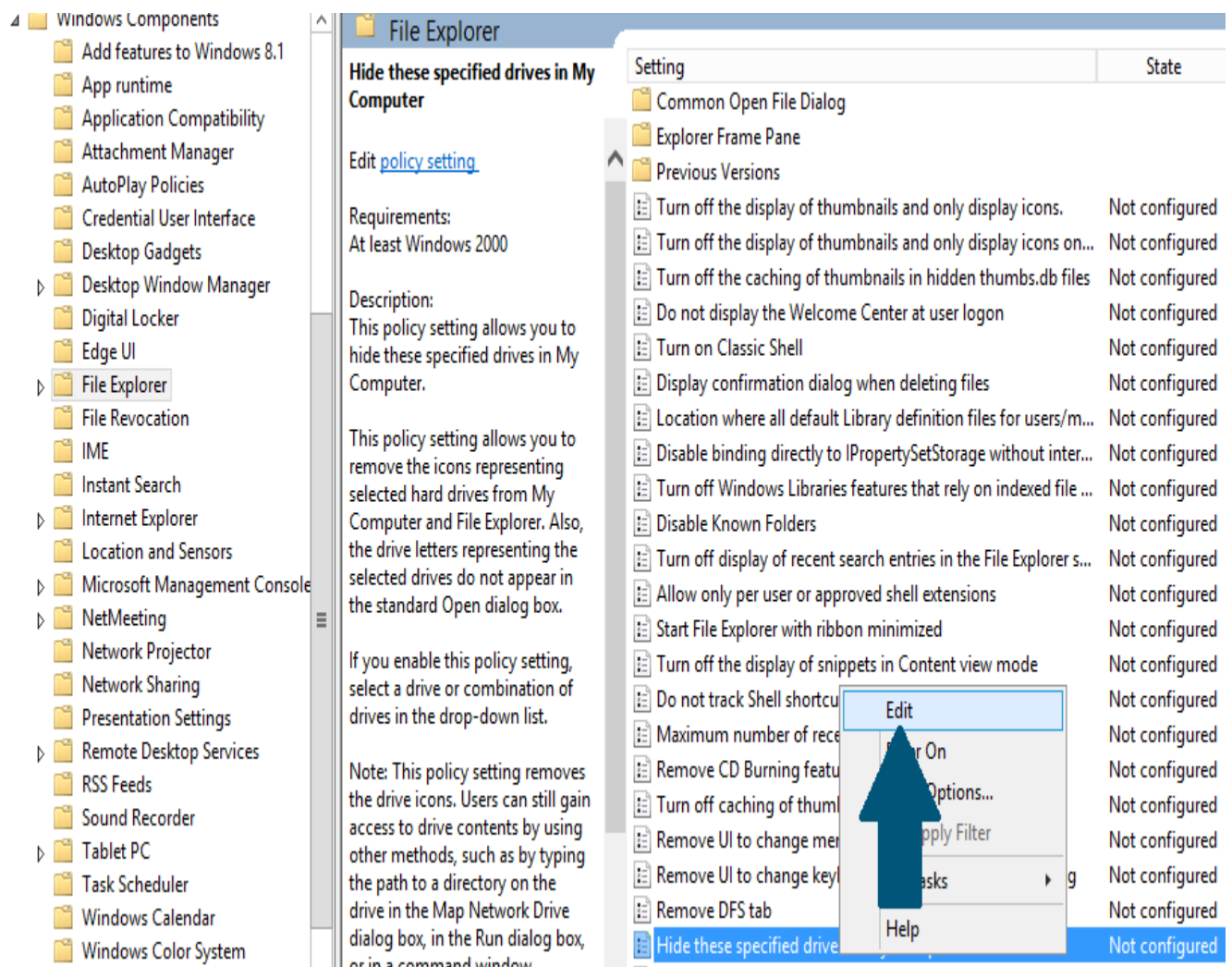
Provide a meaningful name and click **OK**.



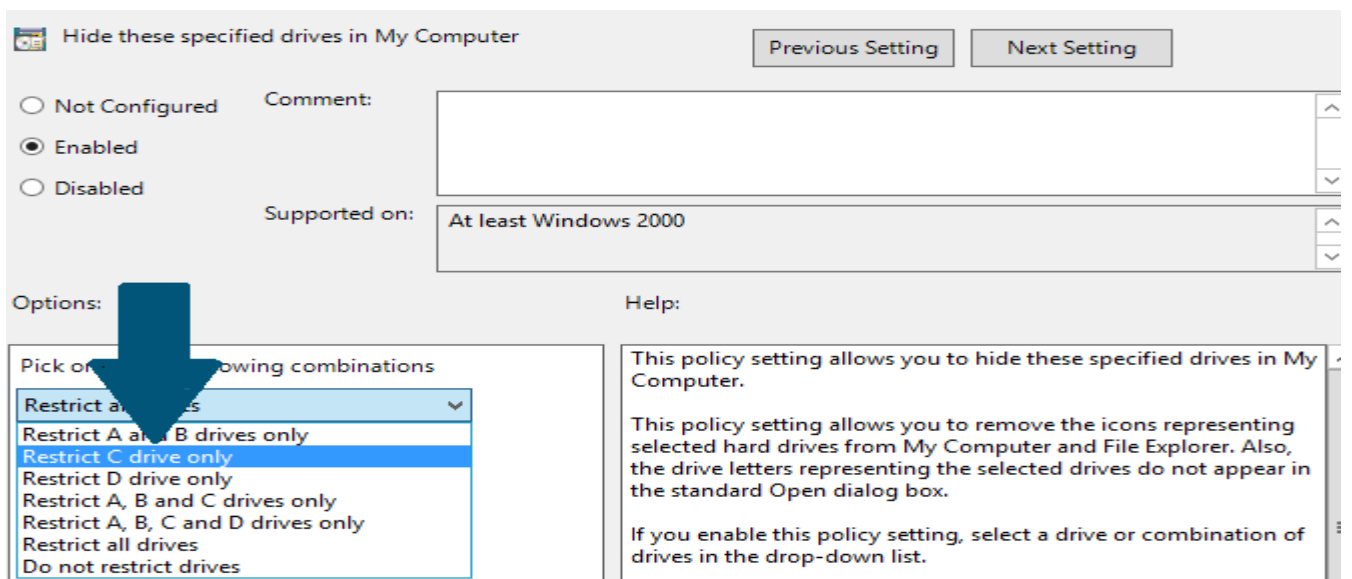
Right-click the GPO (Group Policy Object) you created in above step and click **Edit**.



Go to **User Configuration > Administrative Template > Windows Components > File Explorer**. Right-click **Hide these specified drives in My Computer** and click **Edit**.

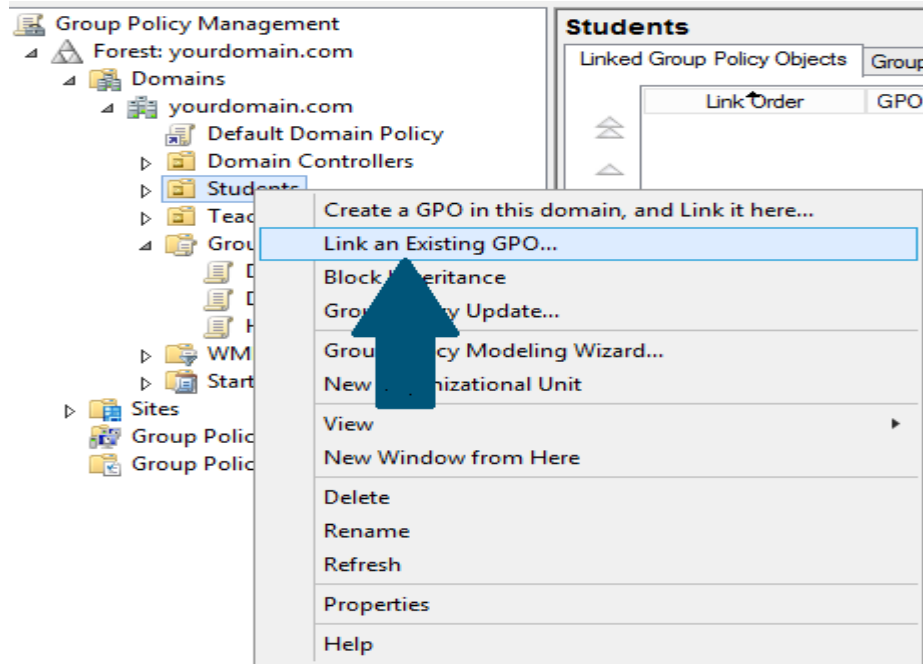


Choose **Restrict C drive only** and click **Apply** and then **OK**.

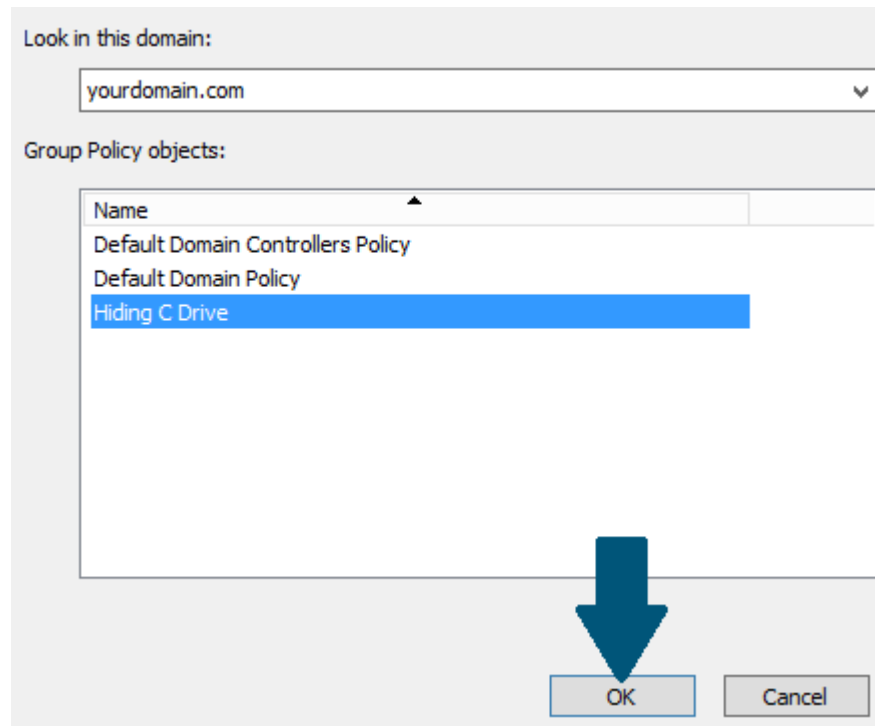


Linking a GPO (GroupPolicy Object) to an OU (Organisational Unit)

Right-click the OU (In my case it is Students) you need to apply the policy and click **Link an Existing GPO**.

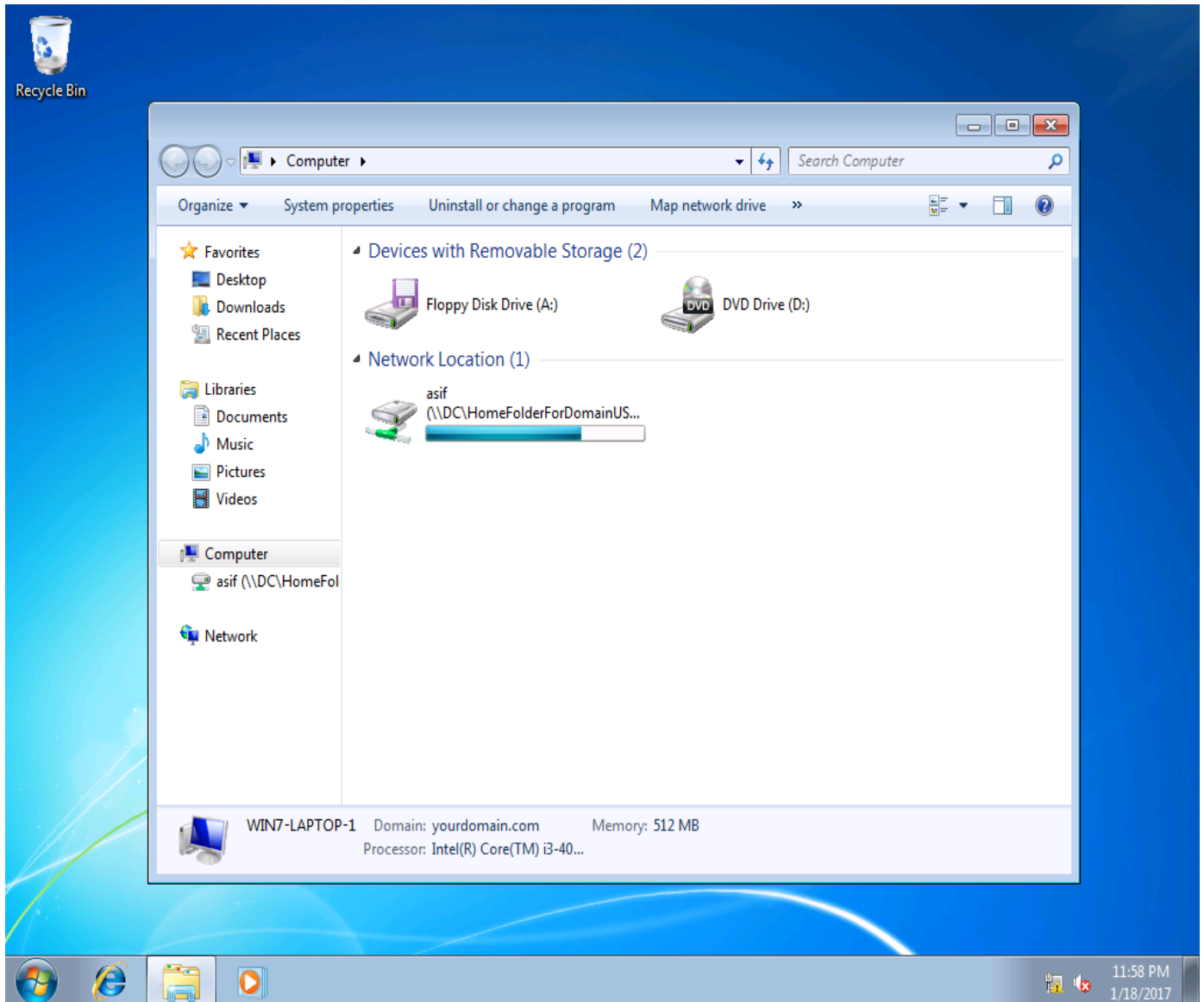


Choose the GPO you created in above steps and click **OK** and you are done.



Testing the Group Policy

Login to a client machine with a user and you will notice there is no C drive in My Computer. Make sure the user is from OU you chose in above steps.



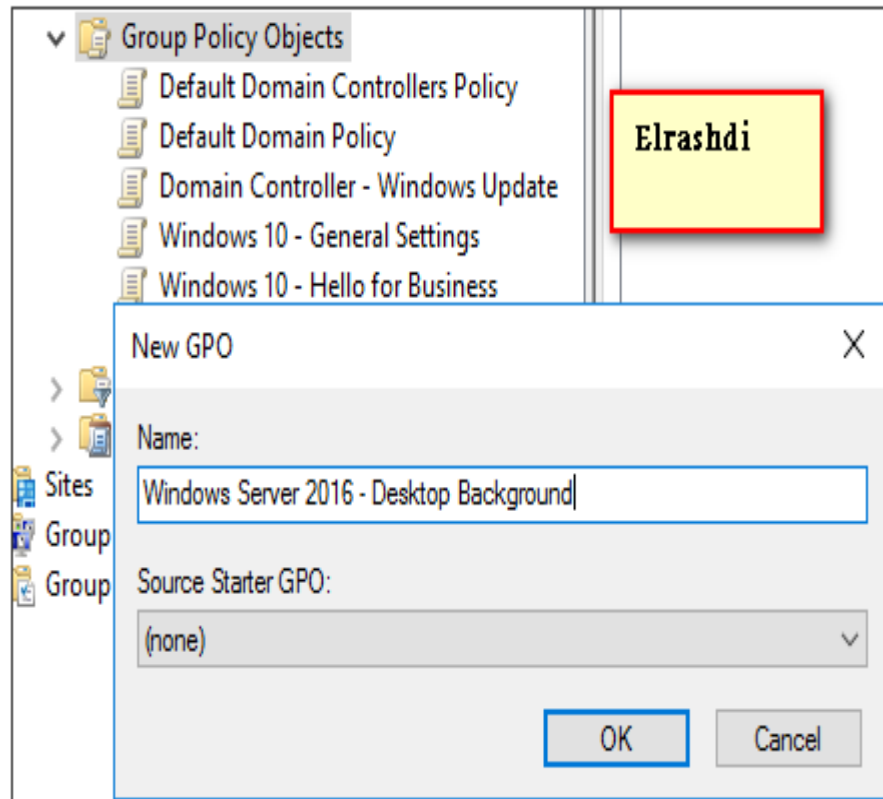
21.5- Changing the desktop background using Group Policy in windows server 2016

تغير خلفية سطح المكتب عن طريق قروب بولسي windows server 2016

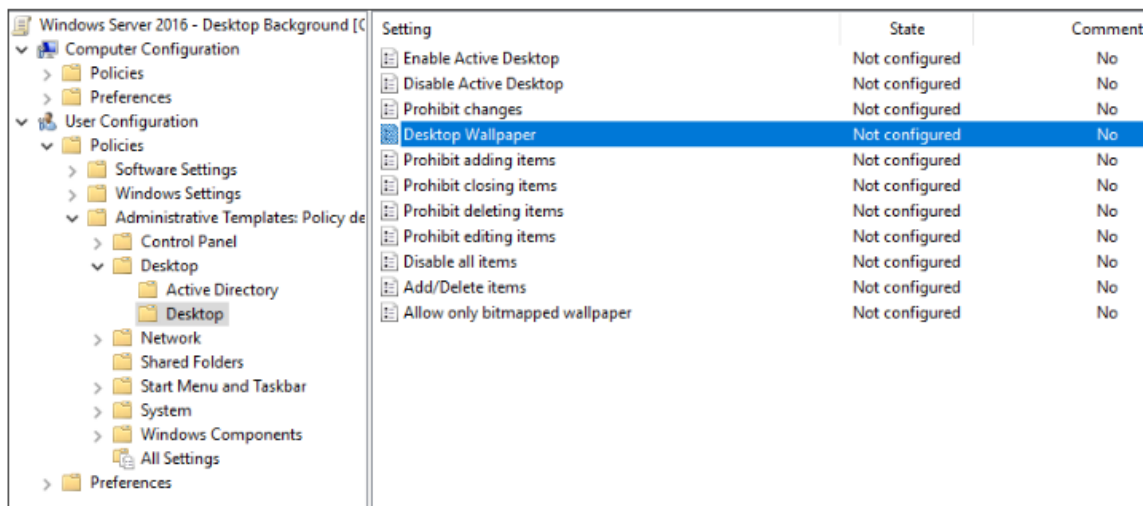
Group Policy Configuration

Right, lets fire up Group Policy Management.

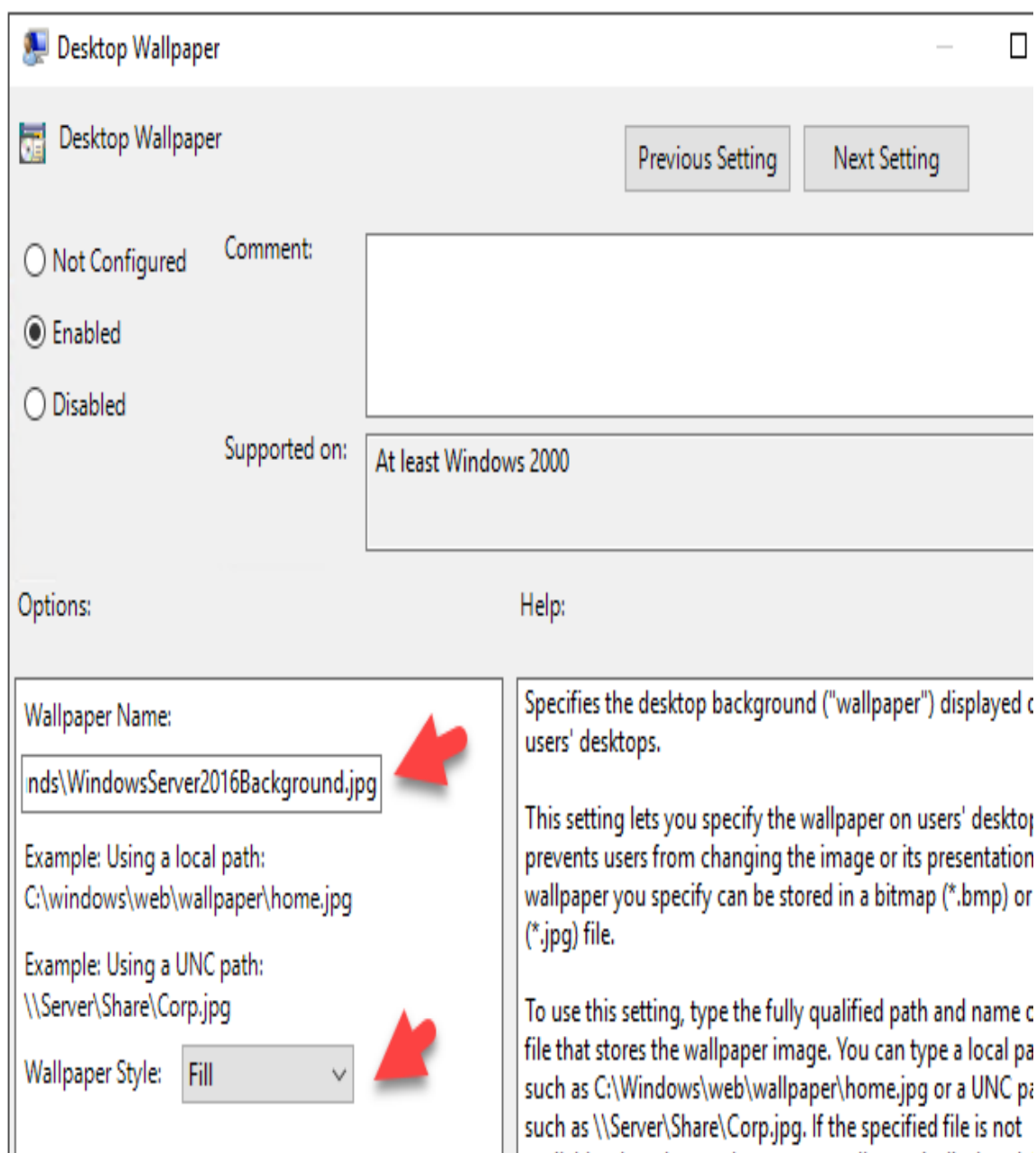
To start with we'll create a new Group Policy Object, I'll call it "Windows Server 2016 – Desktop Background"



The policy setting that we want to edit is under "User Configuration" -> "Policies" -> "Administrative Templates" -> "Desktop" -> "Desktop" -> "Desktop Wallpaper"



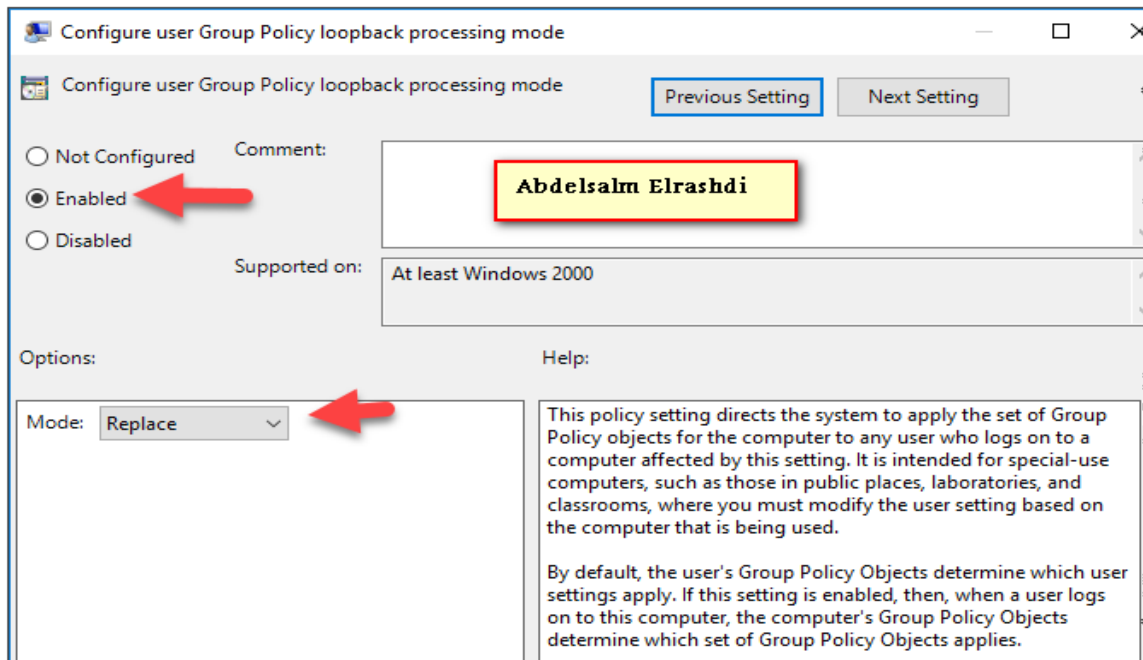
Double click the “Desktop Wallpaper” setting



- Click “Enable”
- Set the wallpaper name to the UNC of the location of your desktop image file i.e.
\\domain.com\NETLOGON\Backgrounds\WindowsServer2016Background.jpg
- Set the “Wallpaper style” to “Fill”

- Click “OK”

Within the same GPO navigate to “Computer Configuration” -> “Policies” -> “Administrative Templates” -> “System” -> “Group Policy” and locate the GP setting called “Configure user Group Policy loopback processing mode”

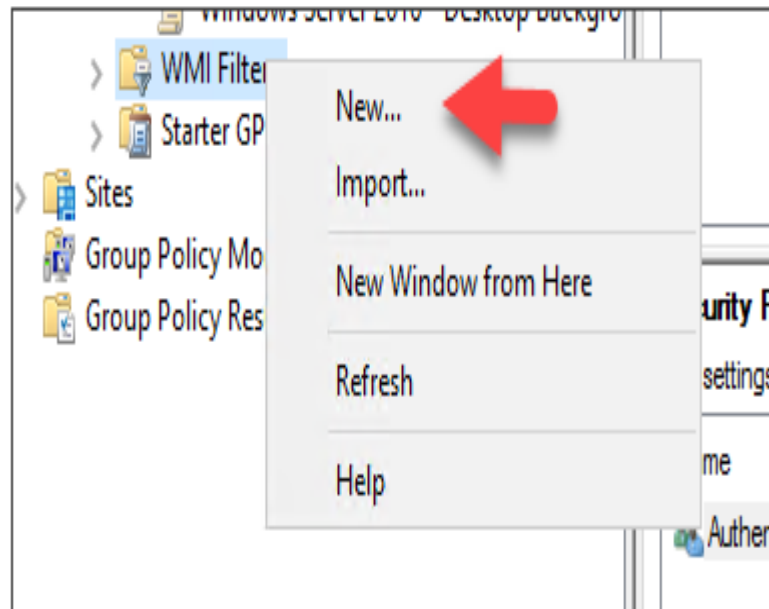


Enable this setting and change the “Mode” to “Replace”

The reason for this setting is to ensure that the “User Configuration” settings are applied to the server when the user logs in. If this setting isn’t configured the policy won’t get applied to the server because the GPO is only associated to a OU with server (computer) objects. Once done we can close this window and return to the Group Policy Management screen.

Ok, as mentioned above this GPO is going to be applied to the server OUs however I suspect that your server OUs also contain Windows 2008/2012/2012R2 servers and you don’t want a Server 2016 desktop applied to these servers. To stop this from happening we can create a WMI filter that’ll single out Server 2016 servers.

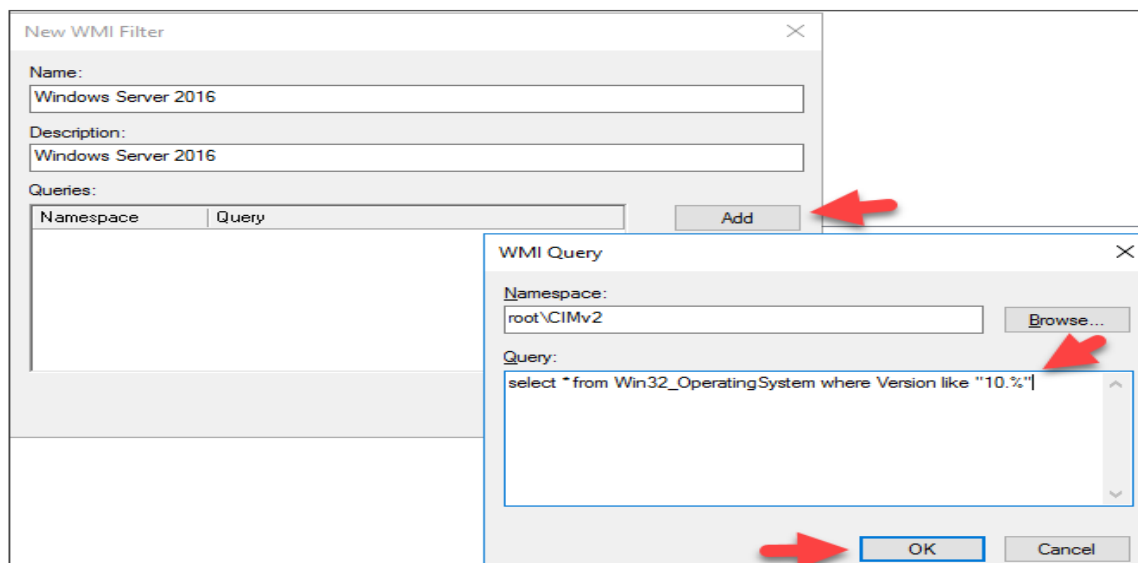
So...from Group Policy Management find “WMI Filters”, right click it and select “New”



Give it a name and description i.e. “Windows Server 2016”

In the queries window click “Add” and add the following query

*select * from Win32_OperatingSystem where Version like “10.%”*

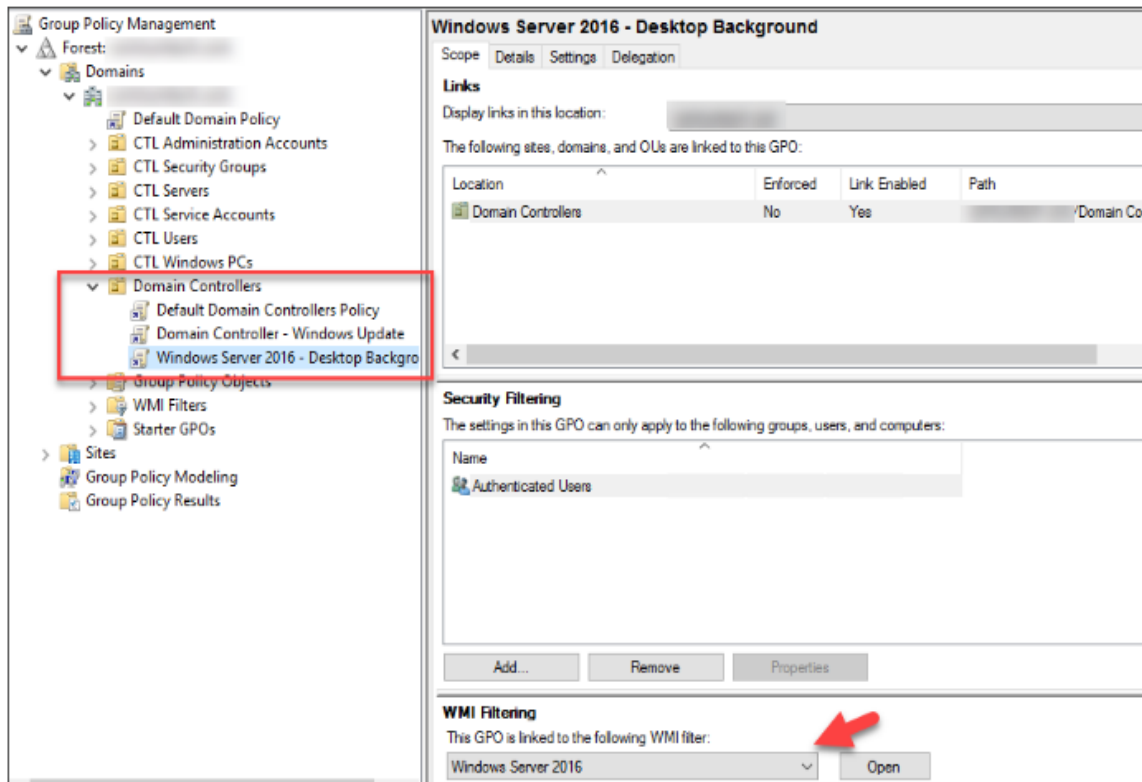


This query will ensure that the OS version is 10 (i.e. Server 2016) and won’t apply to any OS versions below this. Click “OK” and click “Save” to exit the WMI filter window.

Applying the GPO

Ok, so we have our nice new GPO created, the background image on the server and finally a WMI filter created to ensure that only 2016 Servers get the new background.

We just need to apply this GPO to the OU container that houses the servers, in my example I am targeting the DCs. Then we need to set the WMI filter on the GPO to be the one we just created above.



All needs to be done now is to run GPUPDATE on the servers. Log off and log back in and see that nice new background!

22-Delegation in windows server

اعطاء تفويض او صلاحيه للمستخدم او مجموعة من المستخدمين على مستوى الدومين او container او OU

Delegation is one of the most important security features of Active Directory Domain Services.

Delegation enables a higher administrative authority to grant specific administrative rights for

containers and subtrees to individuals and groups. Domain administrators, with broad authority over large segments of users, are no longer required.



22.1- Delegation in windows server 2008

تفويض او صلاحيات علي طريق windows server 2008

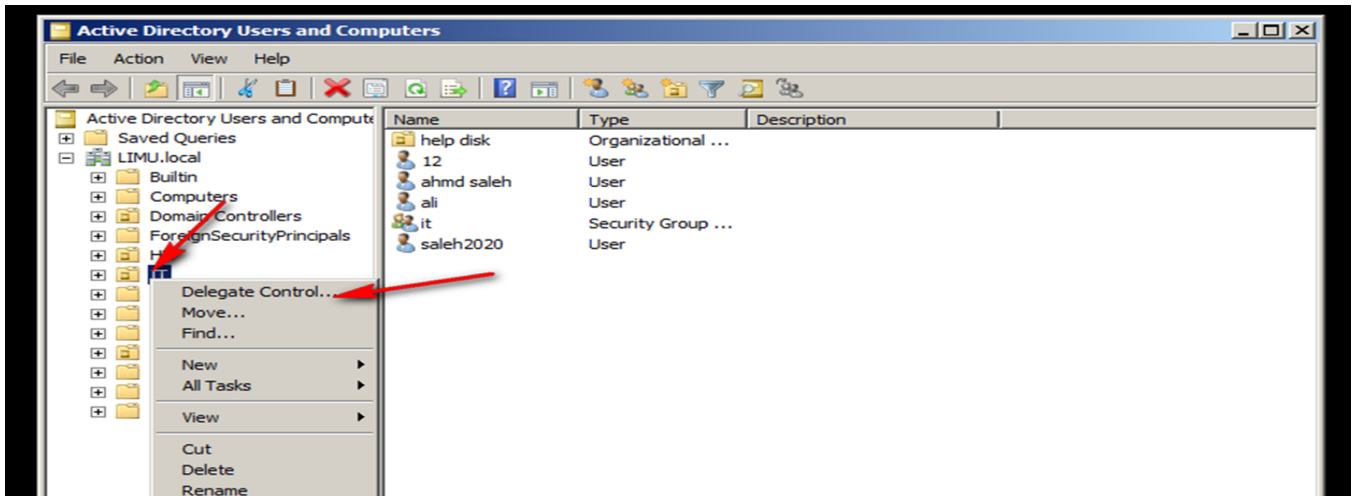
You can use the Delegation of Control Wizard to assign special permissions.

The following permissions can be set with one click:

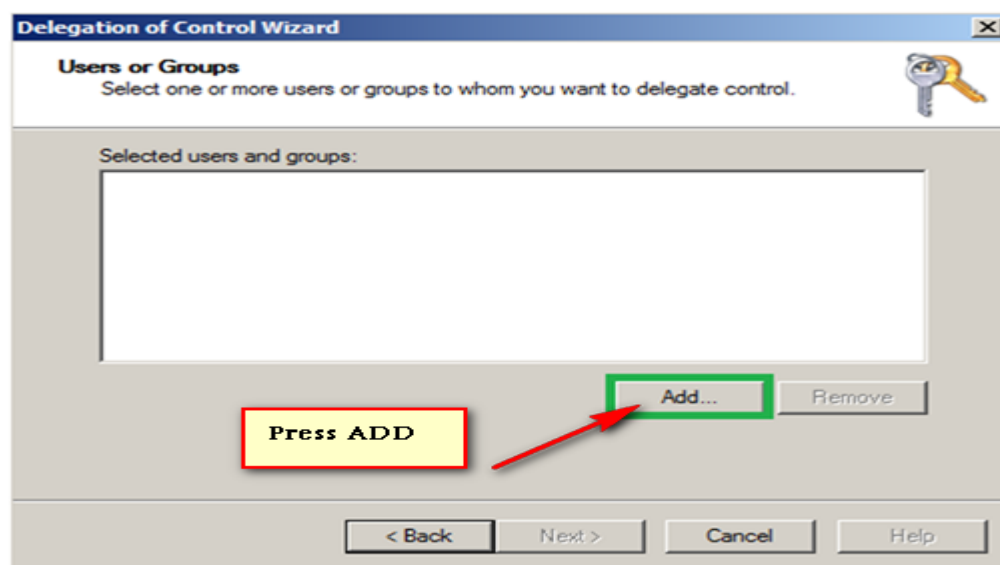
- Create, delete and manage user accounts
- Reset user passwords and force password change at next logon
- Read all user information
- Create, delete and manage groups
- Modify the membership of a group
- Manage Group Policy links
- Generate Resultant Set of Policy (Planning and Logging)
- Create, delete and manage inetOrgPerson accounts
- Reset inetOrgPerson password and force password change at next logon
- Read all inetOrgPerson information

Active Directory Delegation wizard

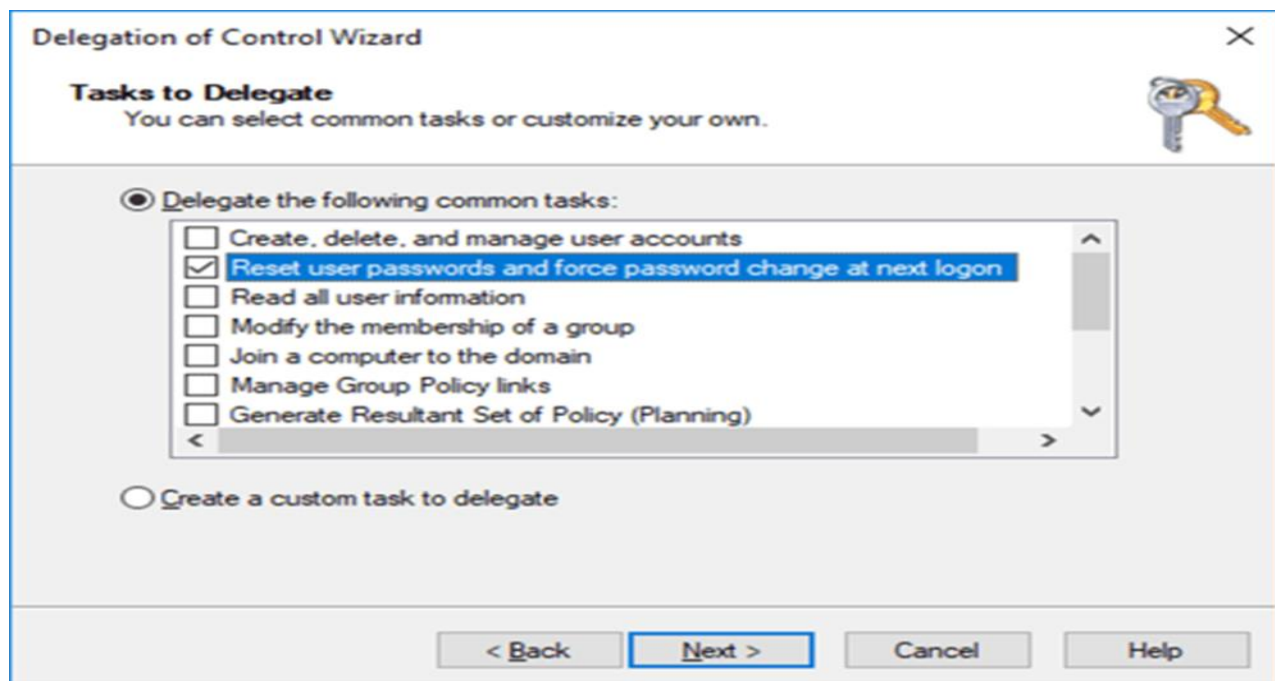
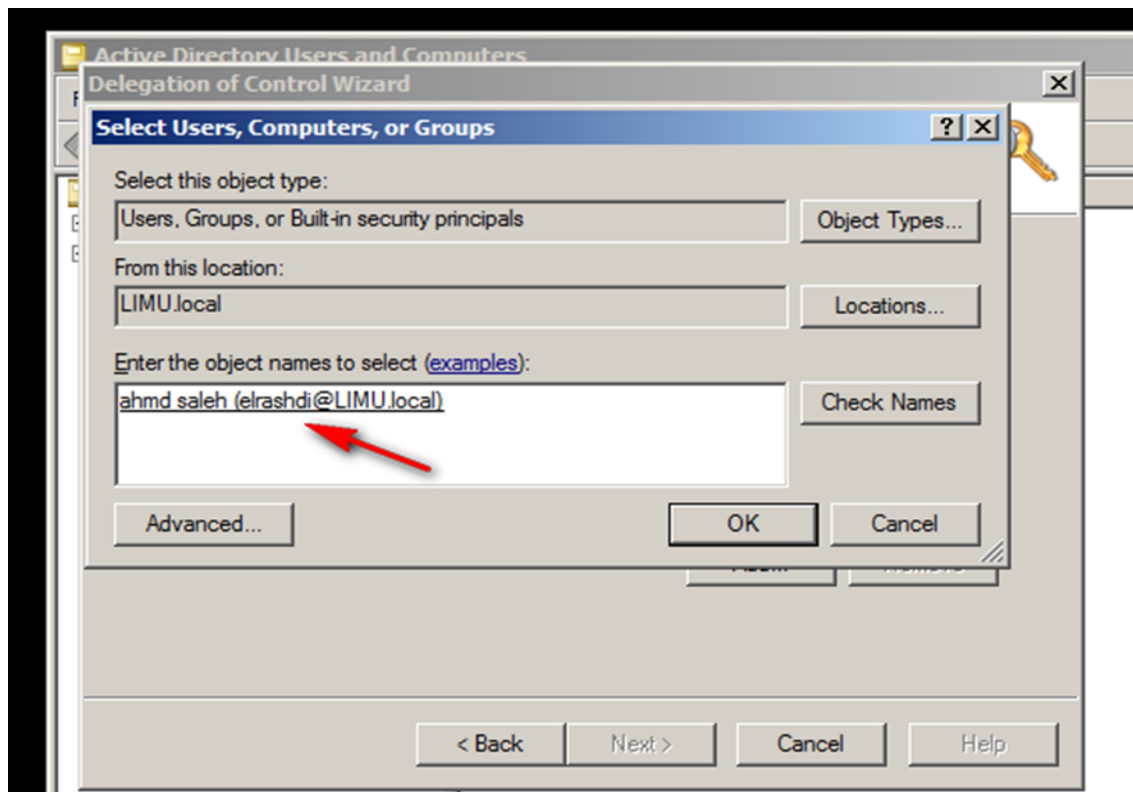
This wizard is available when you open Active Directory Users and Computers console and select Organizational Unit (OU) or domain on which you want to start delegating privileges. Click right mouse button and choose “Delegate Control...” option. You should see a wizard



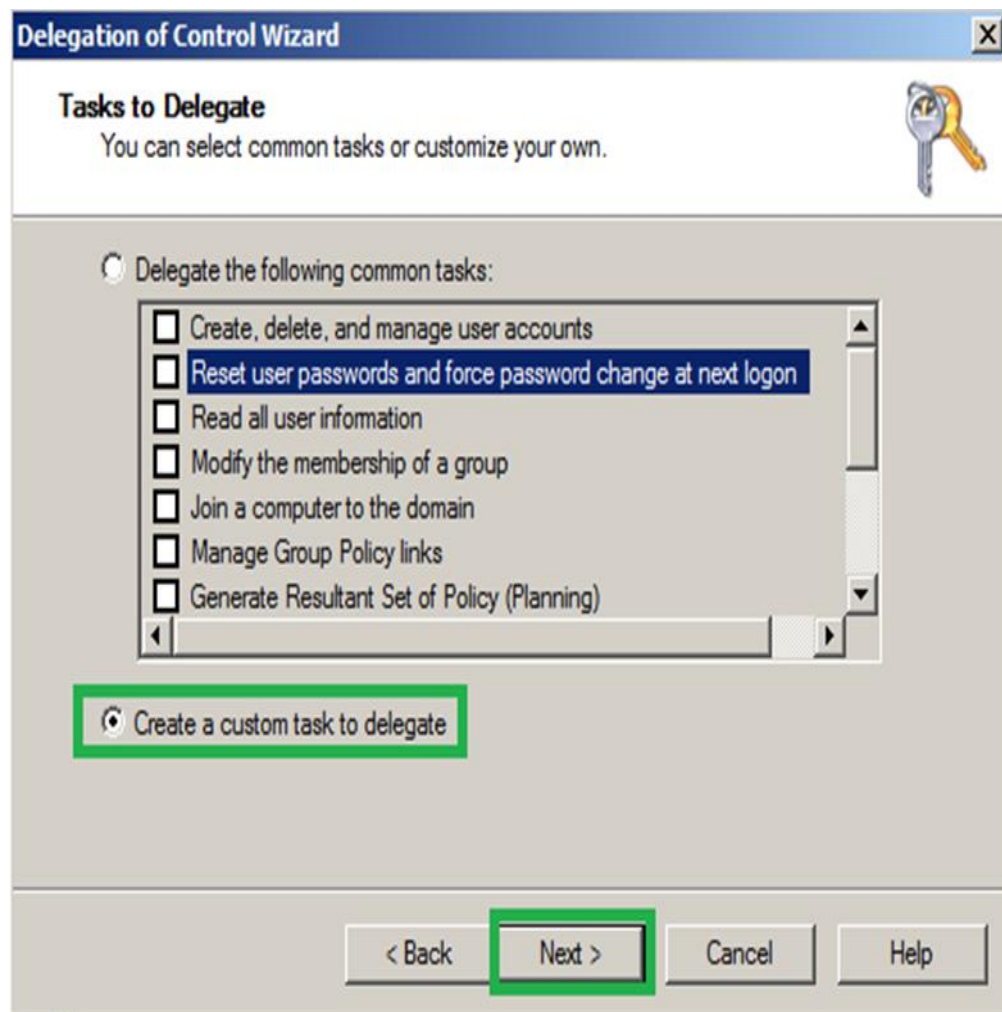
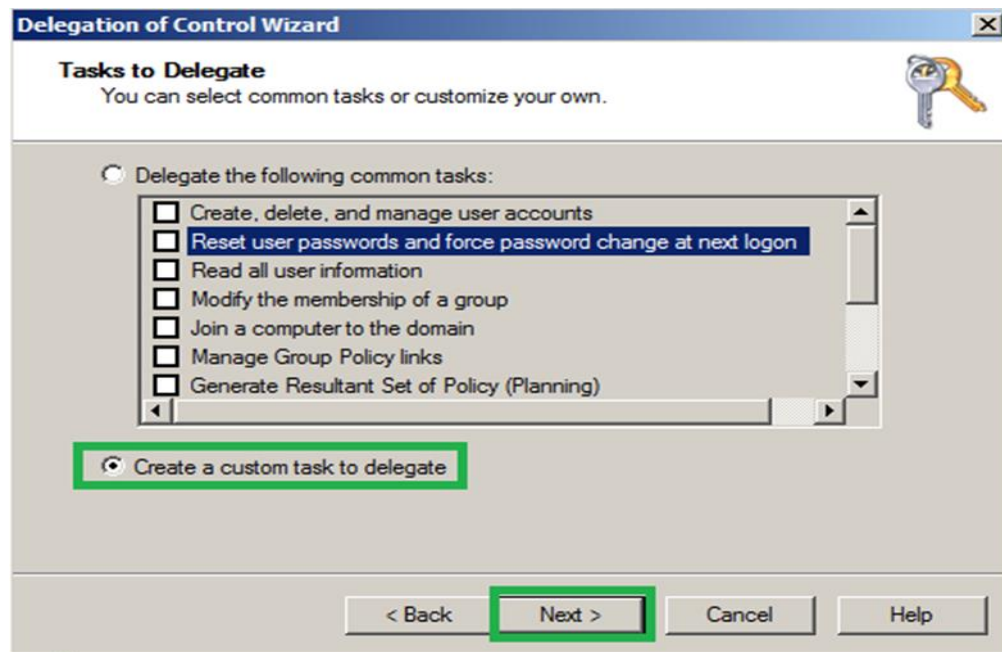
Follow with the wizard and choose desired options. At the first screen, you will be prompted for user or group to which you want to grant permissions.



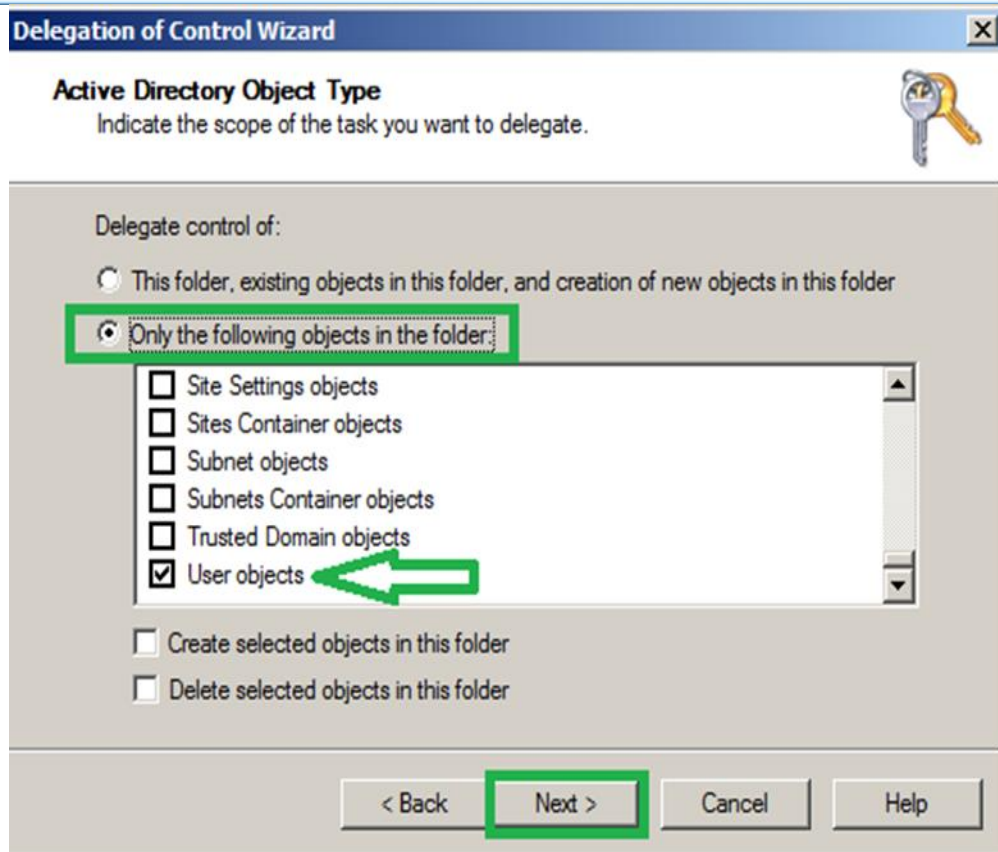
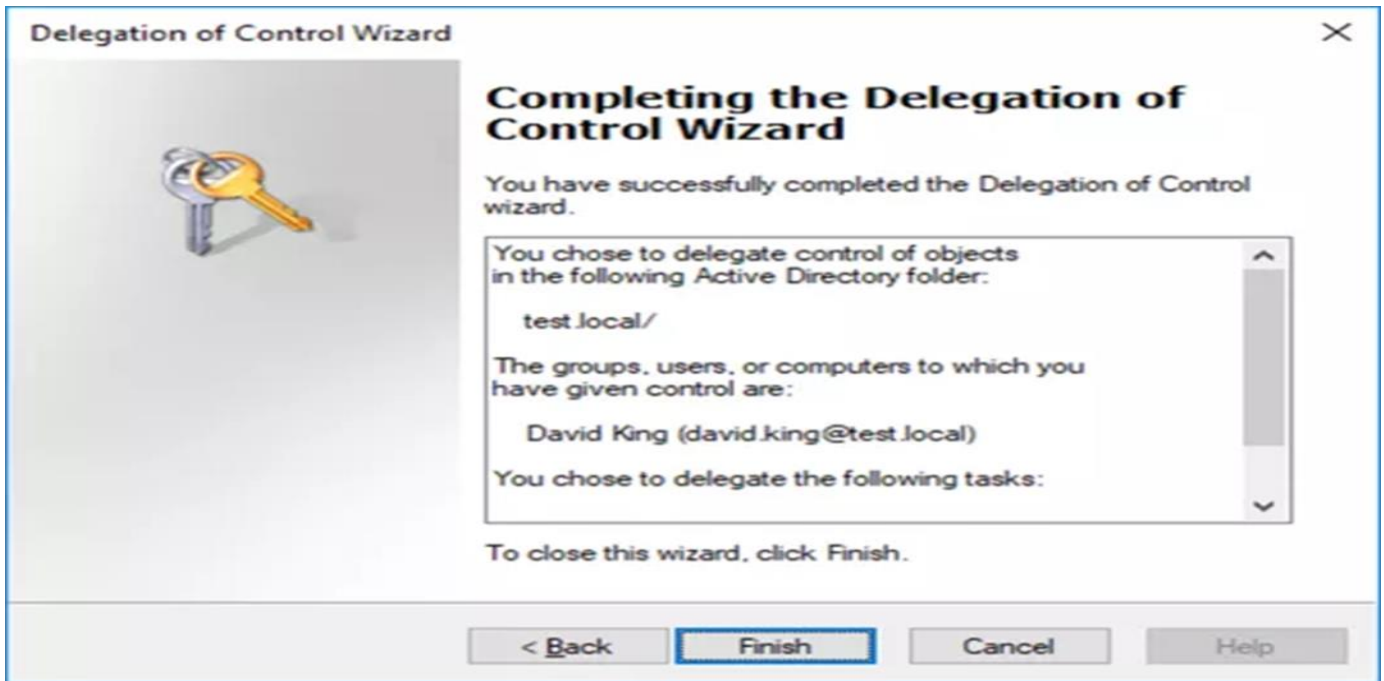
Note! It is good practice to not add users directly in Delegation Control wizard. Instead of adding them directly, please create dedicated group and grant permission to it. Put each user who requires permissions into that group.



In case that you want to create a custom task to delegate, choose the second option and click “Next” button



choose “Only the following objects in this folder” option and select appropriate object(s) from the list



22.2- Delegation in windows Server 2012

تفويض او صلاحيات علي طريق windows server 2012

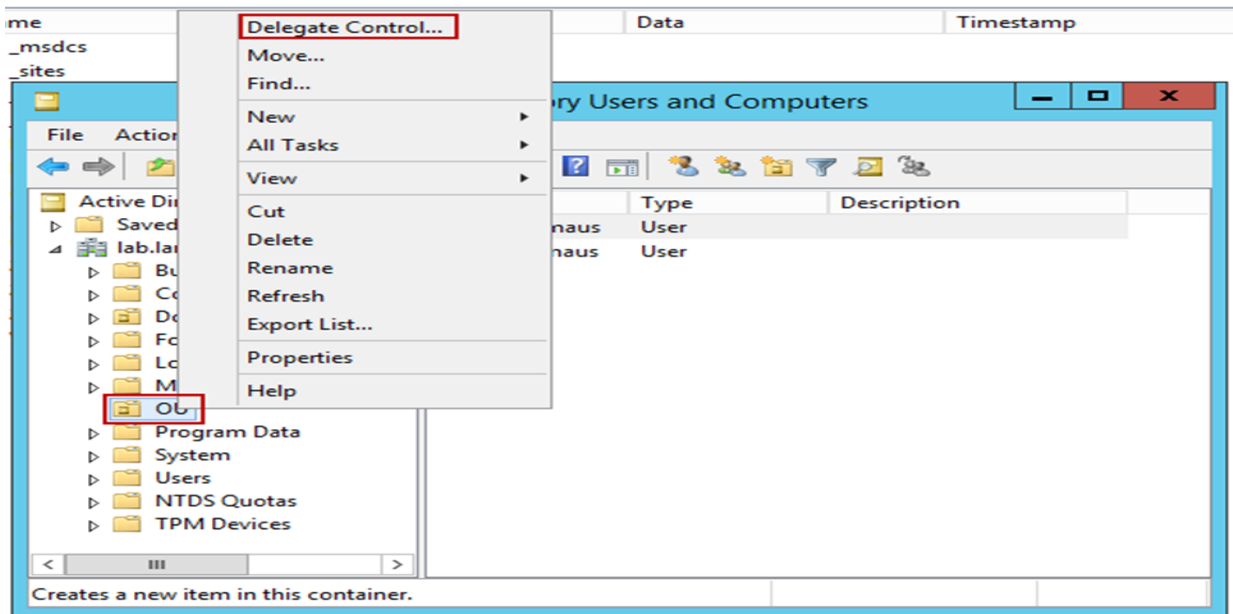
You can use the Delegation of Control Wizard to assign special permissions.

- The following permissions can be set with one click:
- Create, delete and manage user accounts
- Reset user passwords and force password change at next logon
- Read all user information
- Create, delete and manage groups
- Modify the membership of a group
- Manage Group Policy links
- Generate Resultant Set of Policy (Planning and Logging)
- Create, delete and manage inetOrgPerson accounts
- Reset inetOrgPerson password and force password change at next logon
- Read all inetOrgPerson information

Here is an example.

In Users and Computers click on a OU or group with the right mousekey.

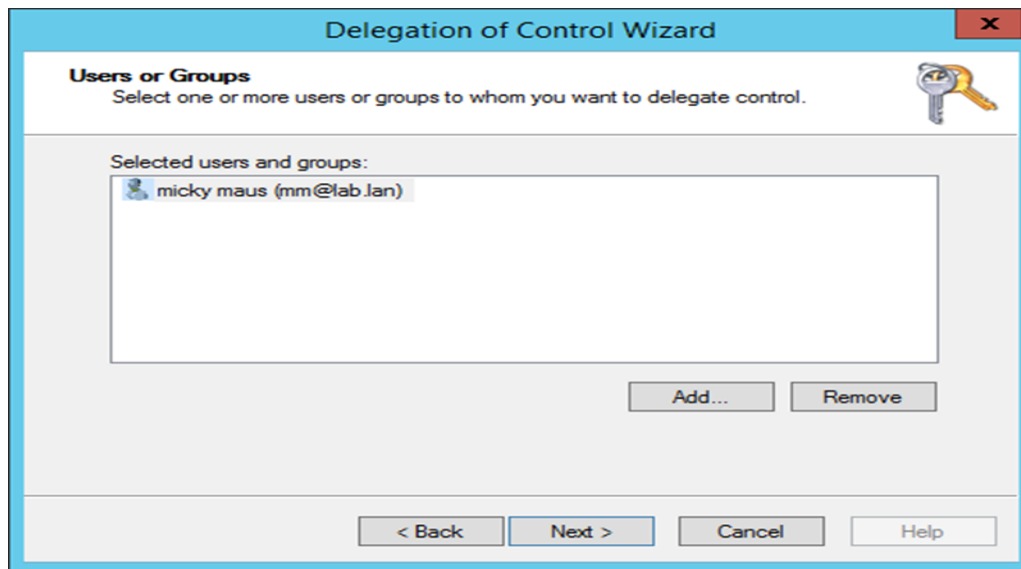
Click "Delegate Control"



The "Delegation of Control Wizard" starts

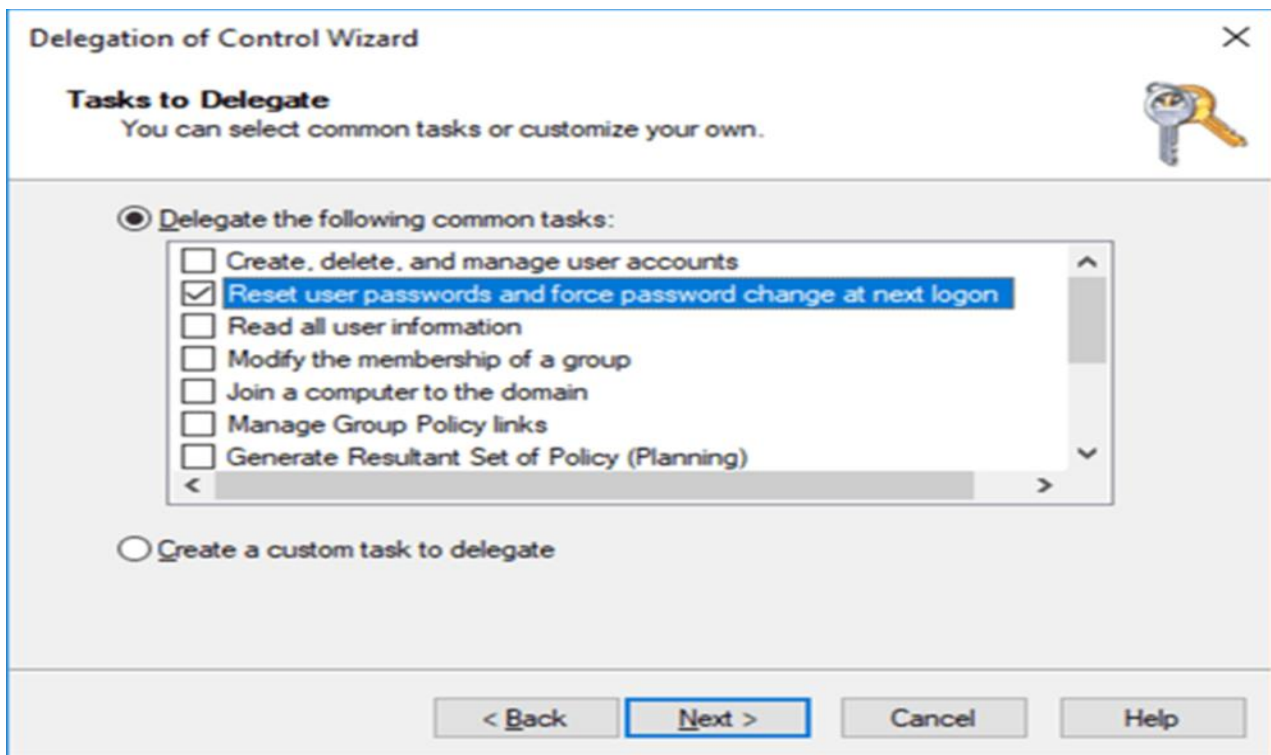
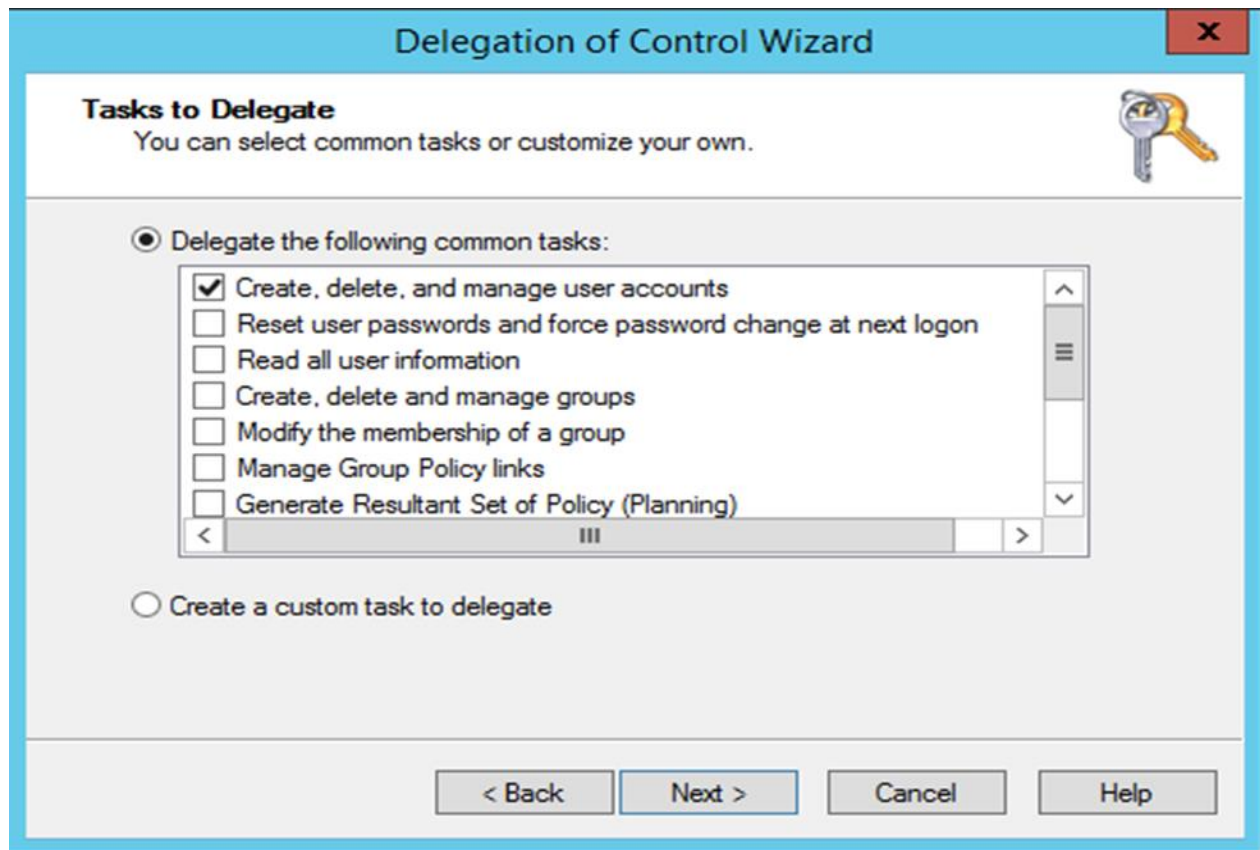
Click "Next"

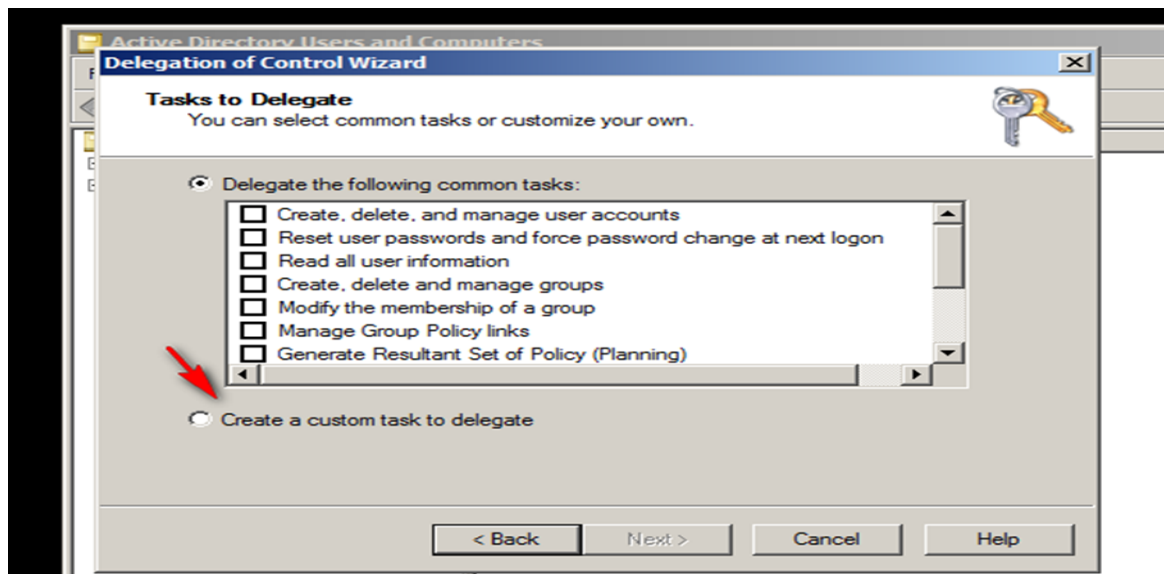
Select a User or Group



Click "Next"

Select the rights you want to delegate





23- Security and Sharing windows server

the difference between share permissions and file permissions; essentially they refer to the security setting that a user may have on a local server, versus a folder or file shared on that server. In short, share permissions apply to files or folders shared over the network and file permissions are used to restrict a user who is logged onto that machine. Figuring out how these permissions combine was a pain in NT, however Microsoft has included an effective permissions tool with XP and Windows Server 2003. Just click on the shared file or folder in Explorer, choose the Security tab, click Advanced, and then choose the tab for Effective Permissions.

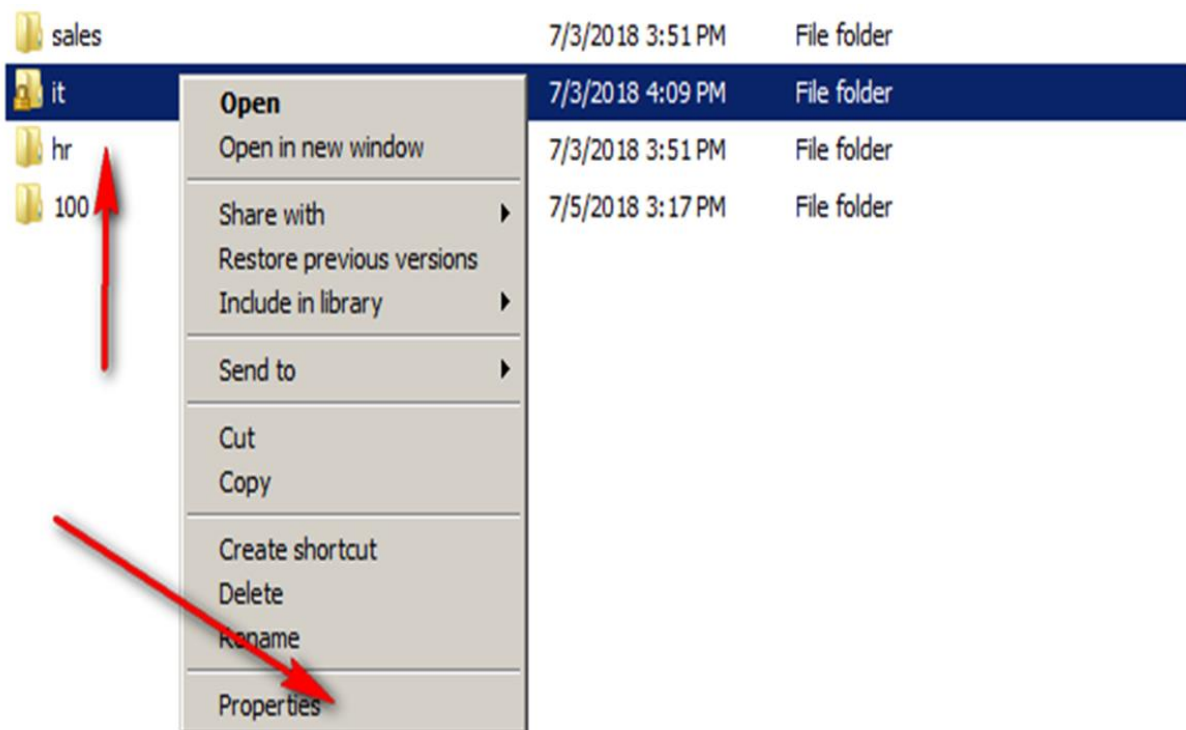


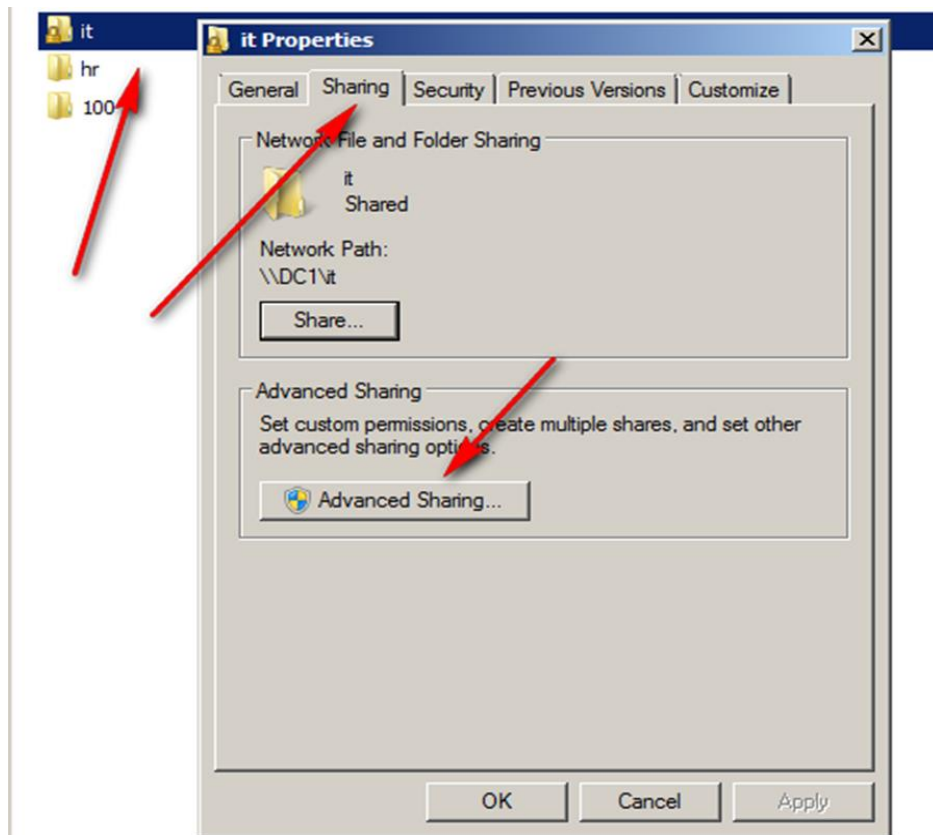
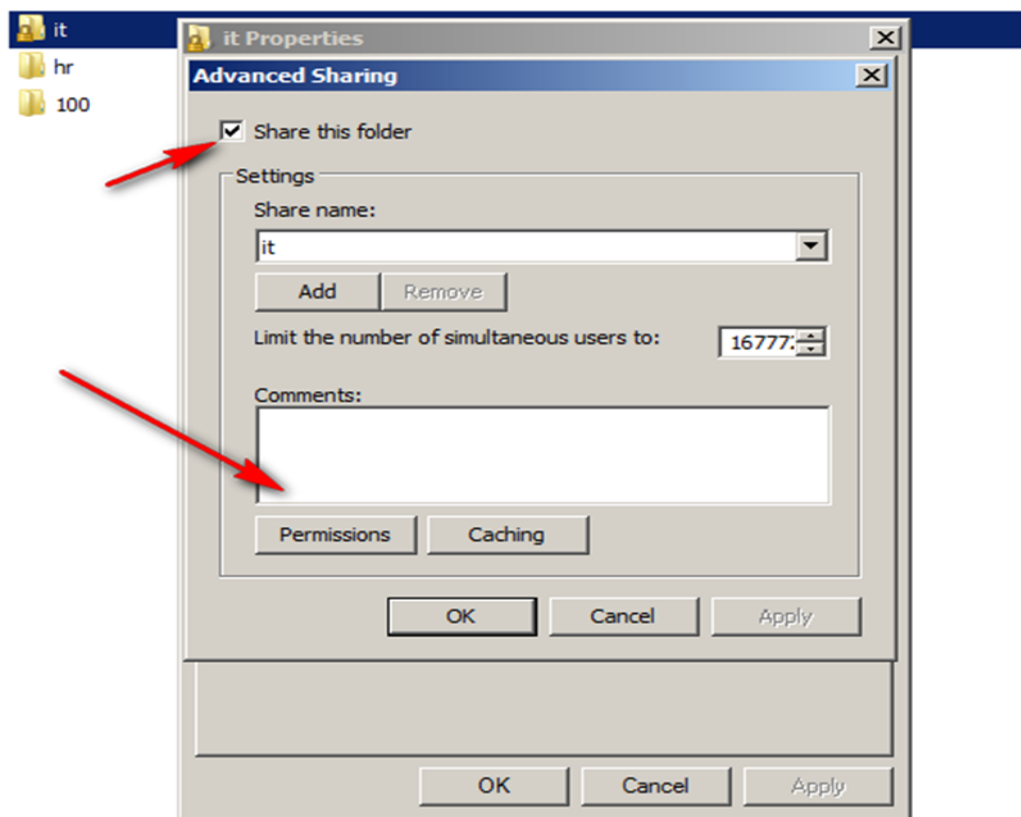
23.1- Security and Sharing windows server 2008

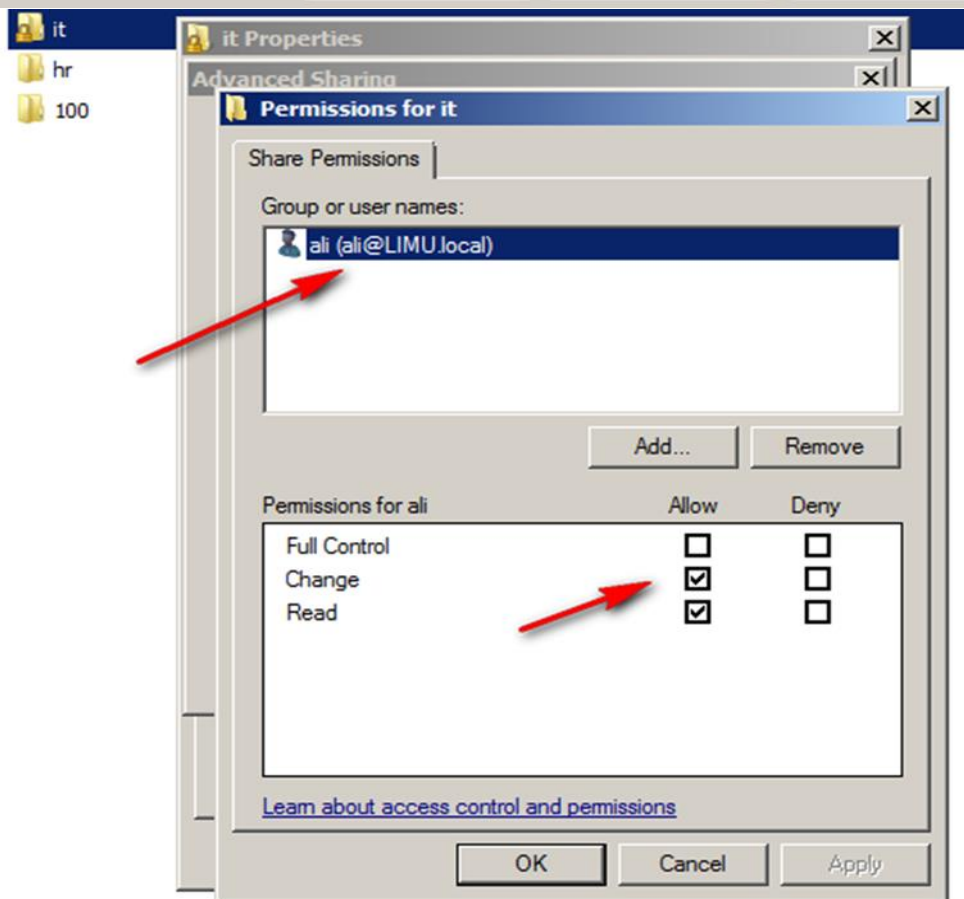
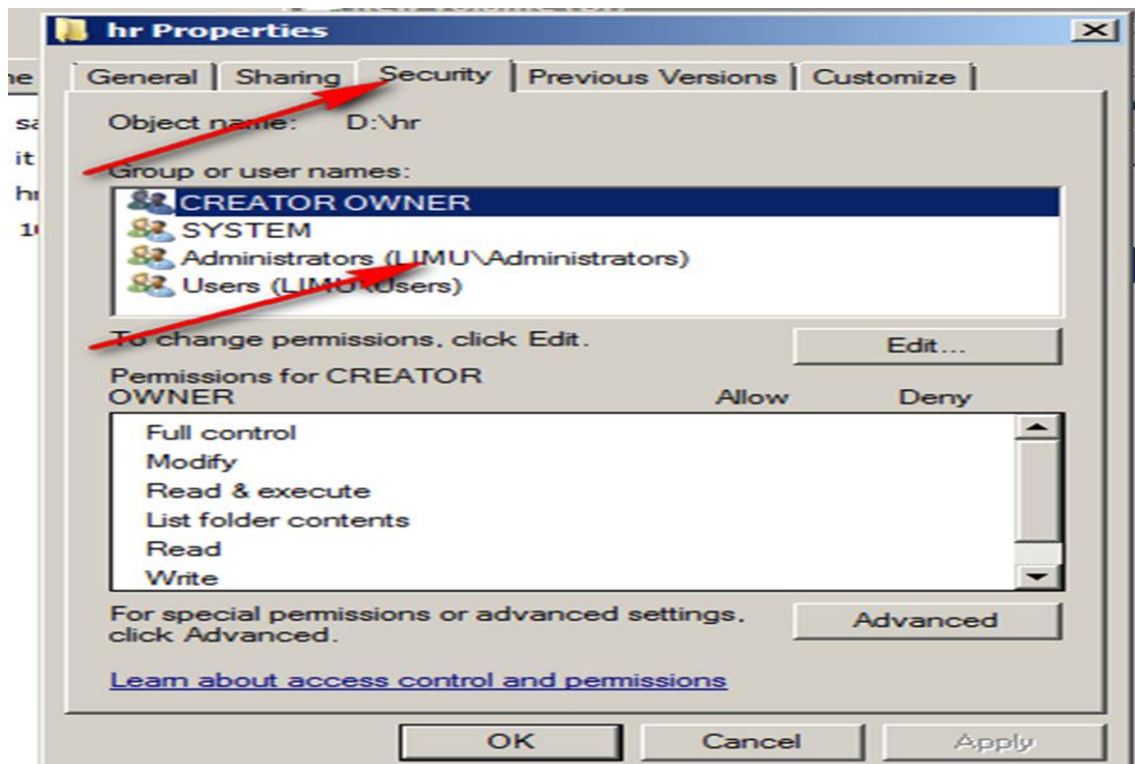
عملية Security وهي عبارة عن طريقة معين لحماية المجلدات من الدخول الغير مصرح بها لحماية هذا المجلد او الملف بحيث يتم تحديد الاشخاص المخول لهم بدخول ايضا الصلاحيات المحدد لكل شخص.

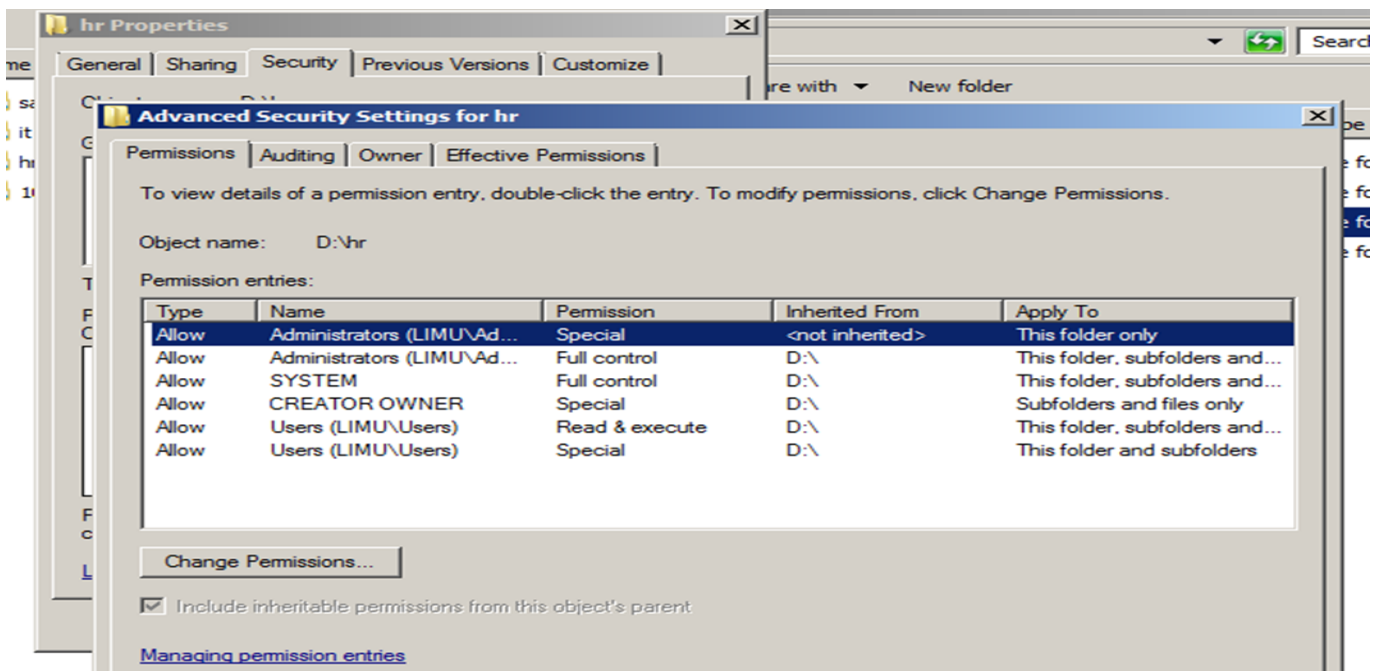
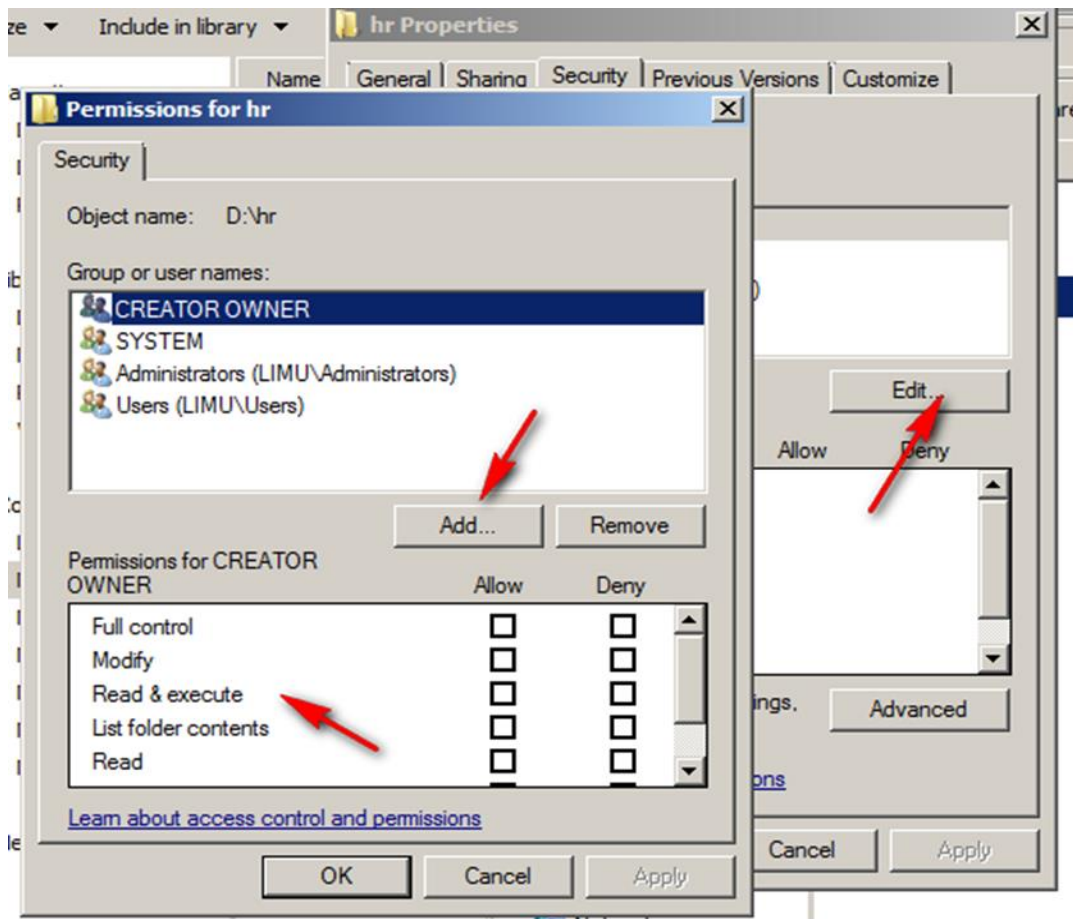
مع ملاحظة ان عملية الامن عادة تطبق عندم يدخل مستخدم عندها صلاحية بعمل login علي السيرفر.

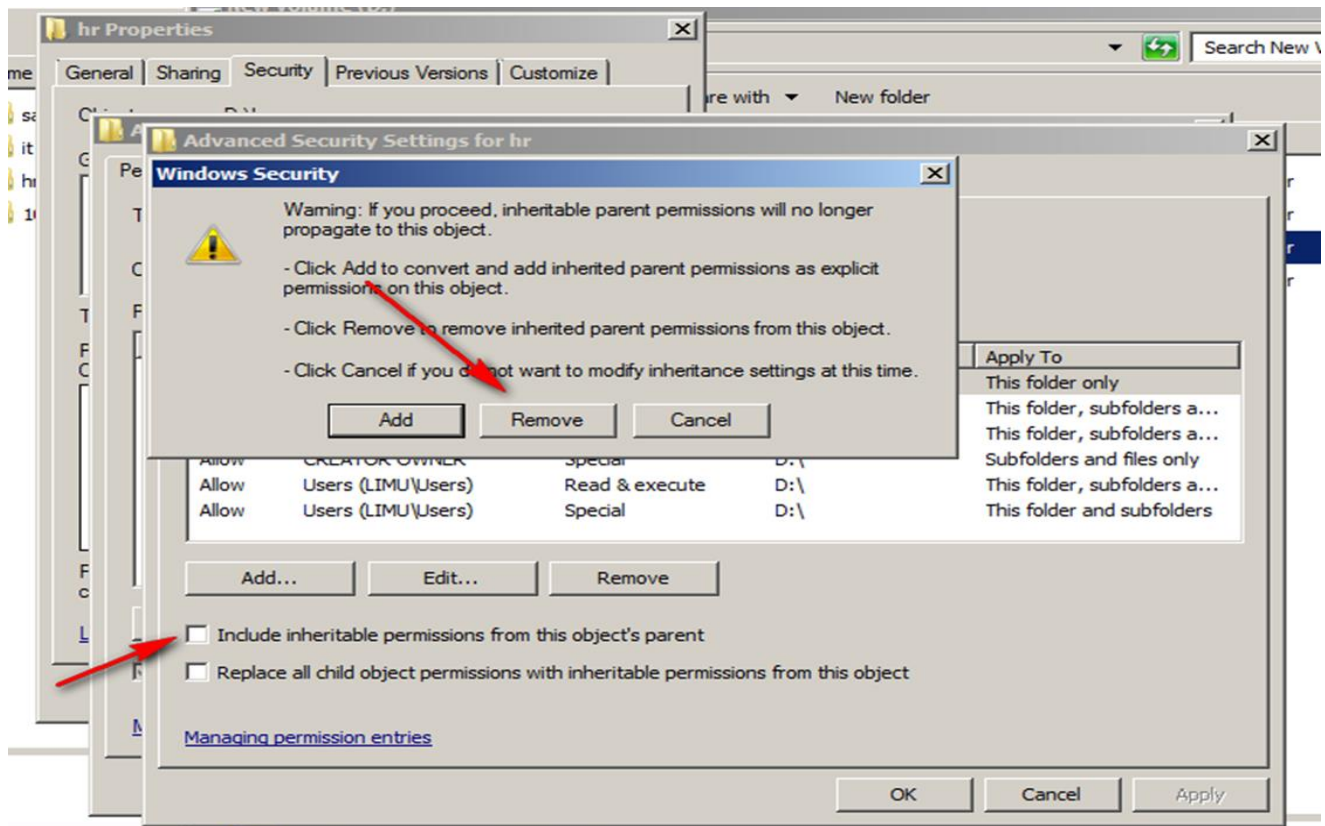
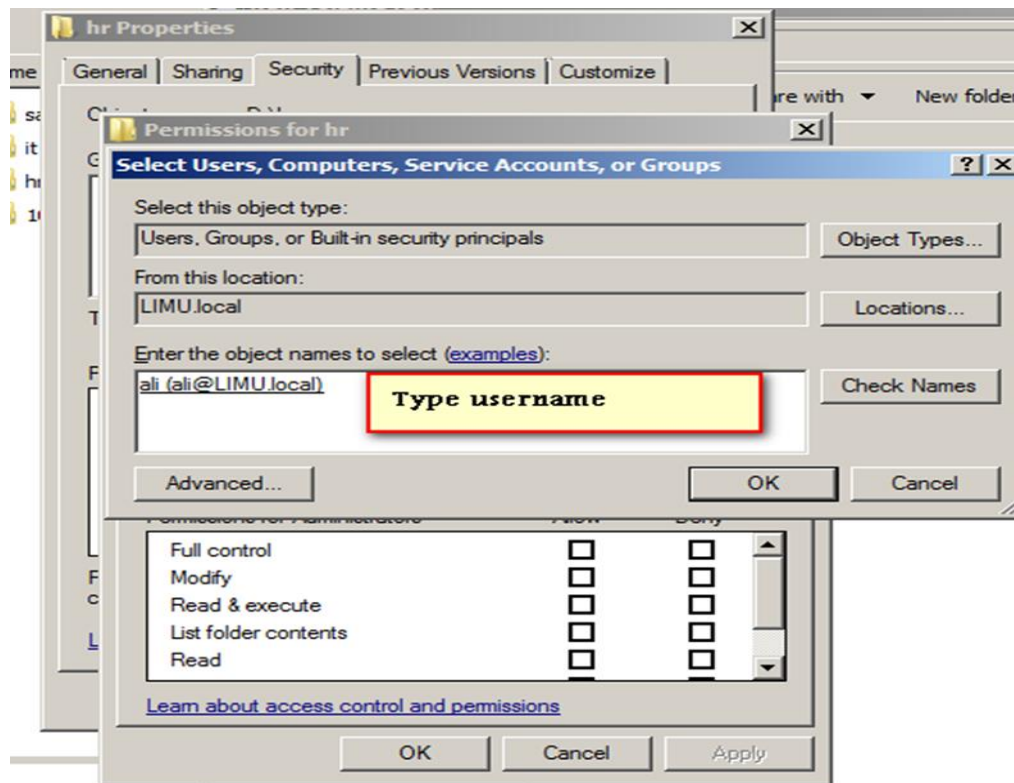
ام عملية Sharing وهي مشاركة هذا المجلد عن طريق الشبكة بحيث يمكن الوصول الي جميع المجلدات الموجودة داخل السيرفر عن طريق الاجهزة الاخرى داخل الشبكة كلا وفقا للصلاحيات المعطاة له عن طريق مدير الشبكة.

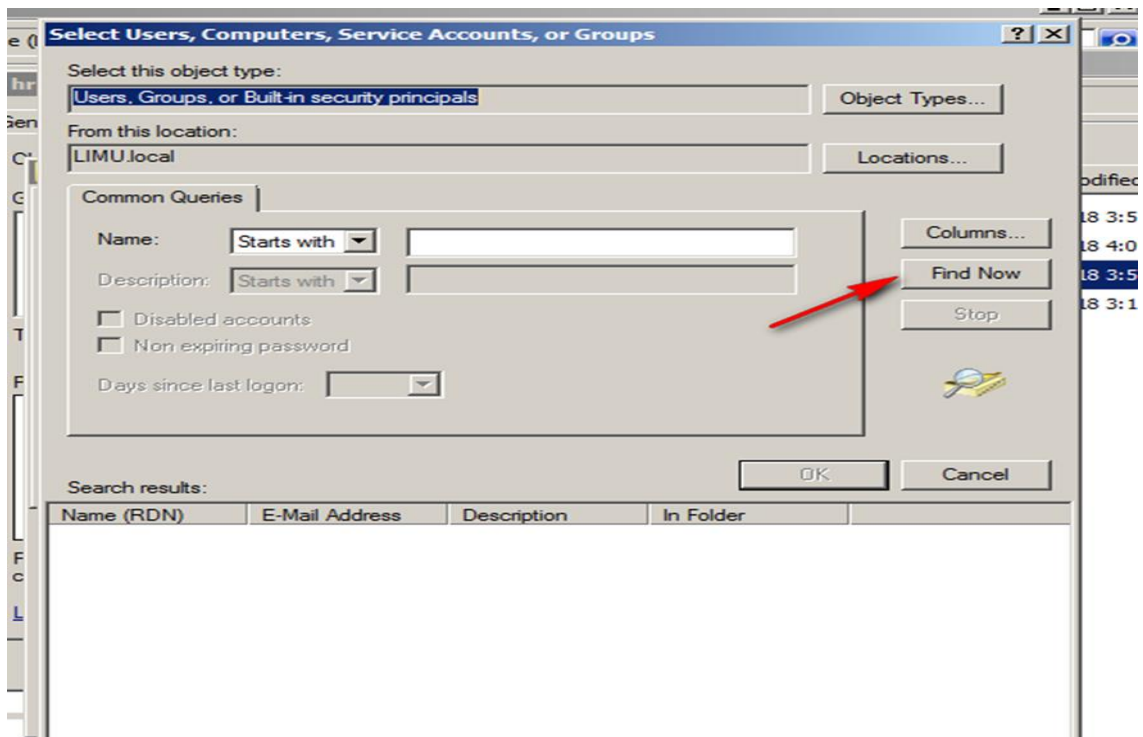
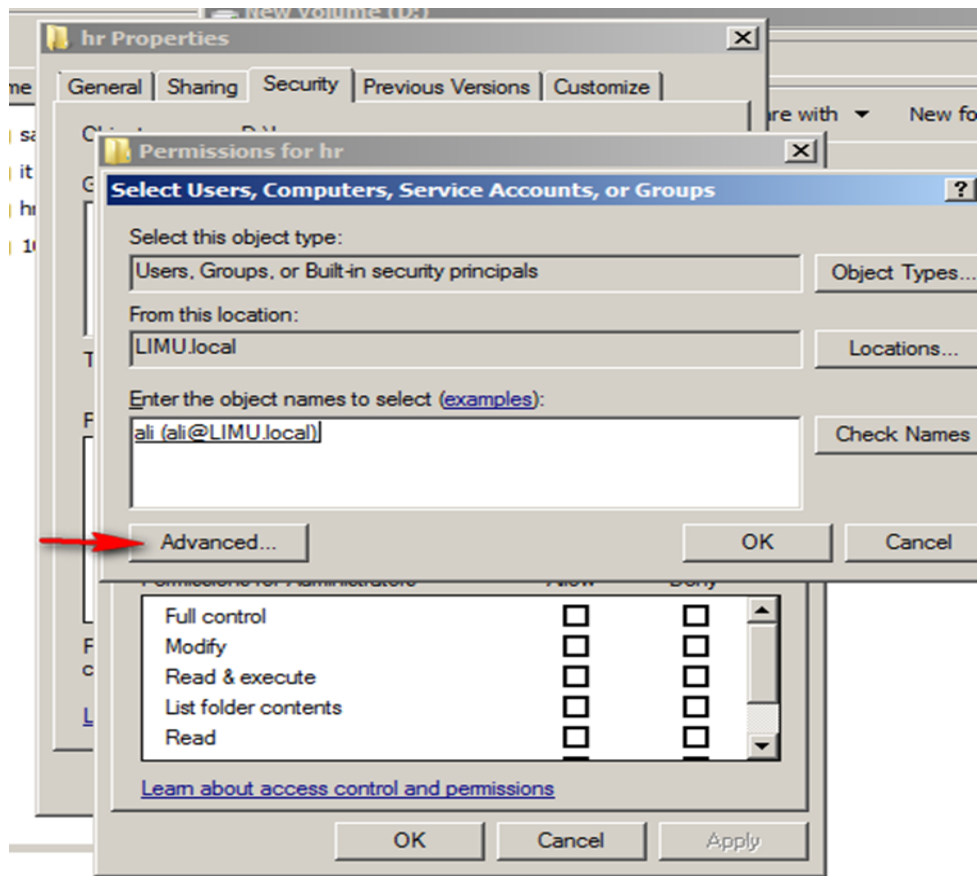


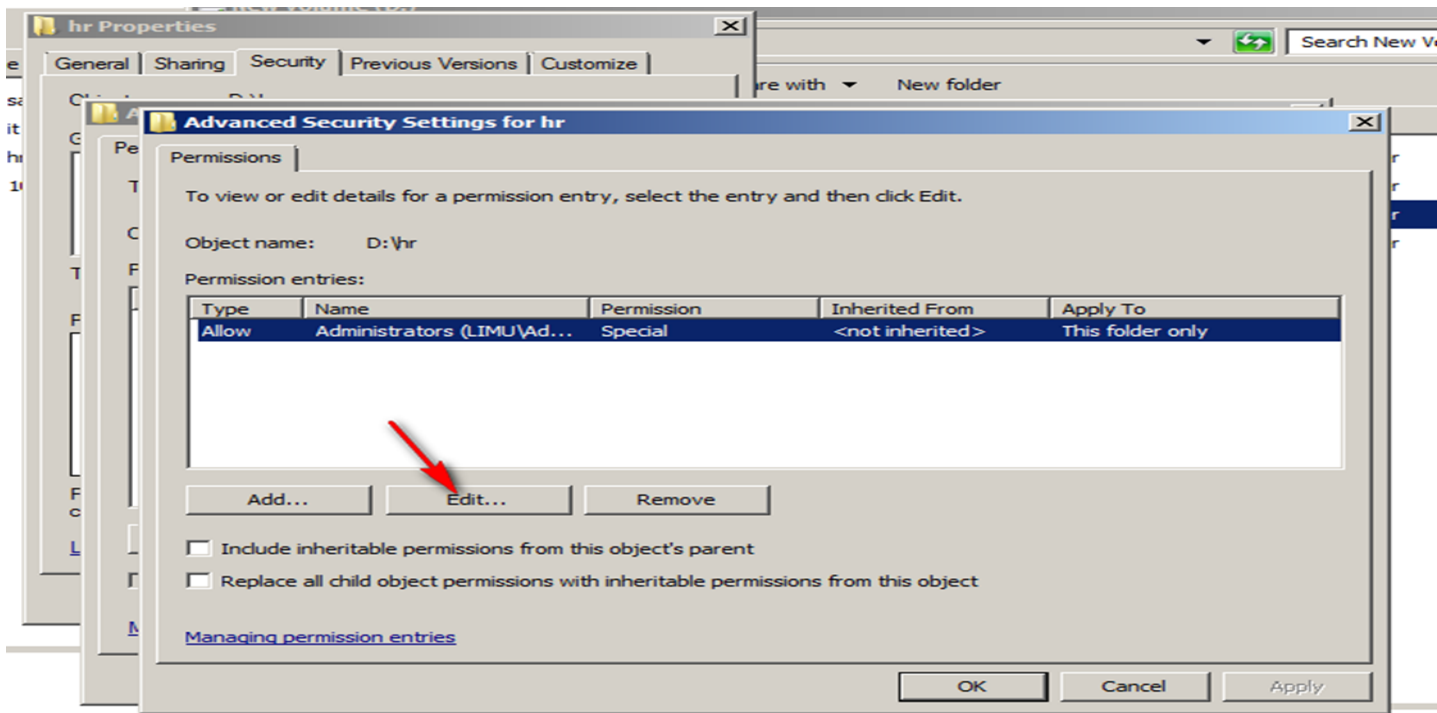
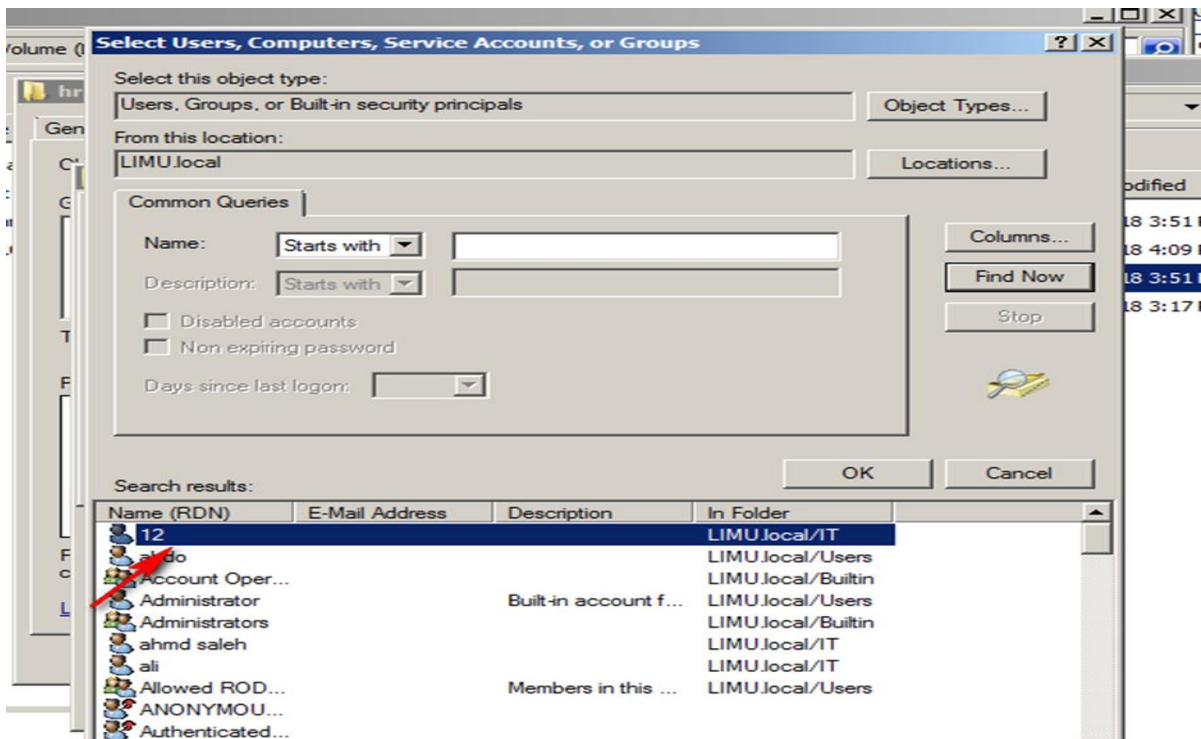


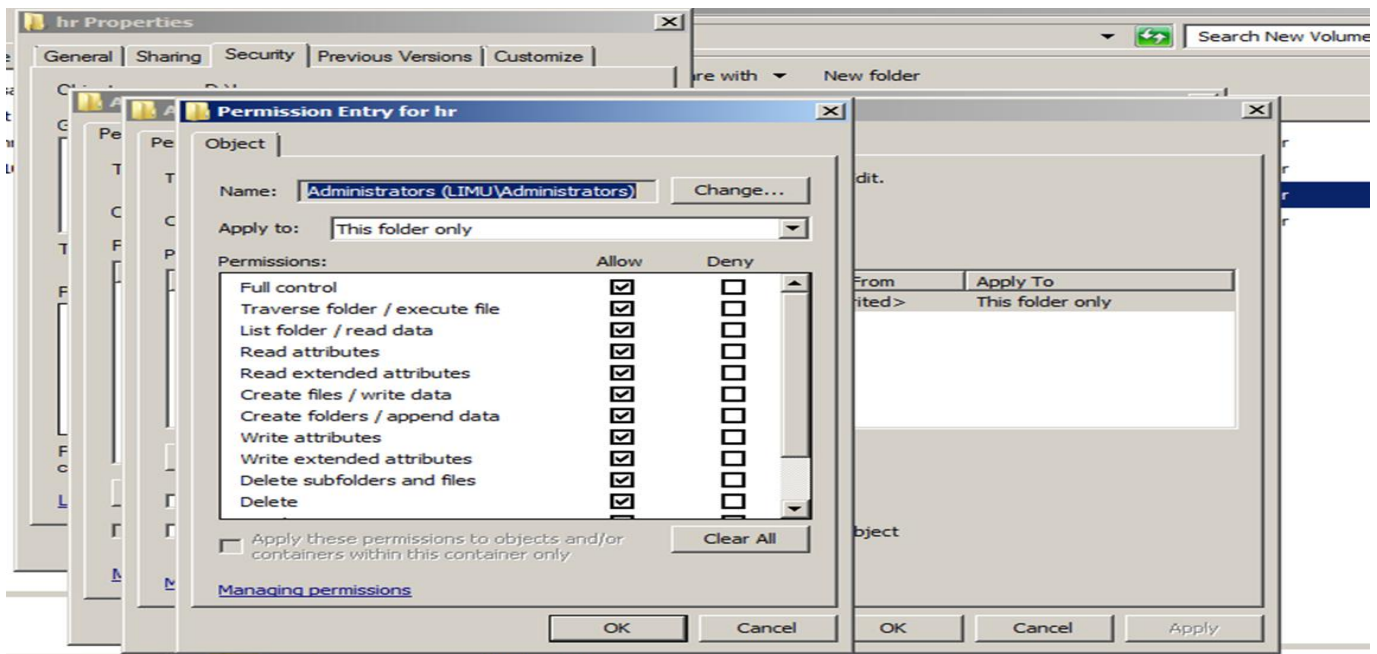










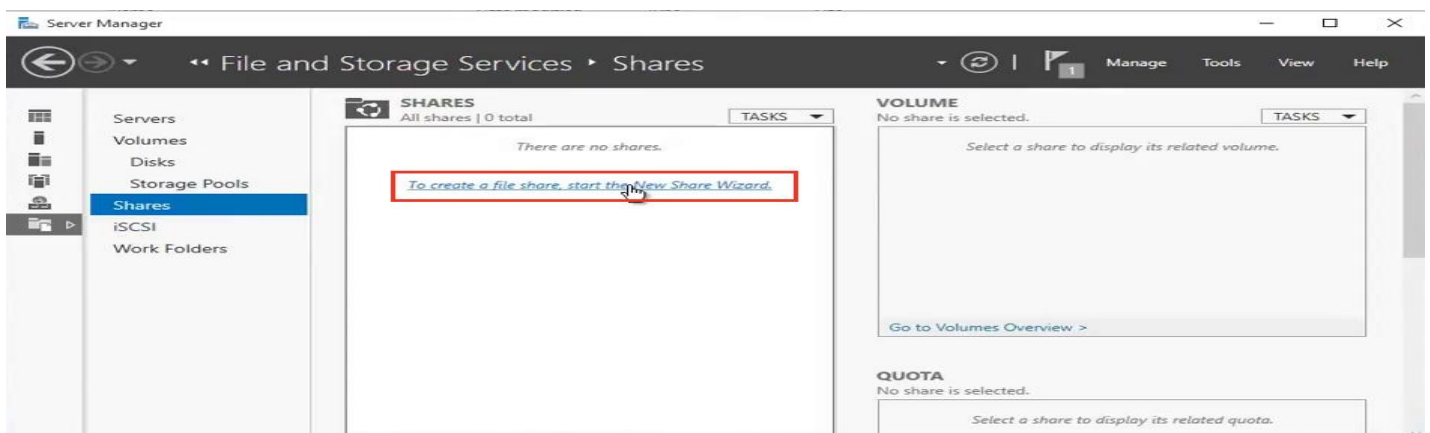


23.2- security and sharing in windows server 2016

Share Files and Folders in Windows Server

Before start sharing files make sure that the advanced sharing settings is configured correctly from control panel with firewall settings then select the folder you want to share. Here we will share files with File and Storage Services, it's already available in windows server by default.

Go to Server manager click File and Storage Services then click shares>tasks>New share to create a folder share on server.



New Share

Select a share profile for the folder you want to share then click Next.

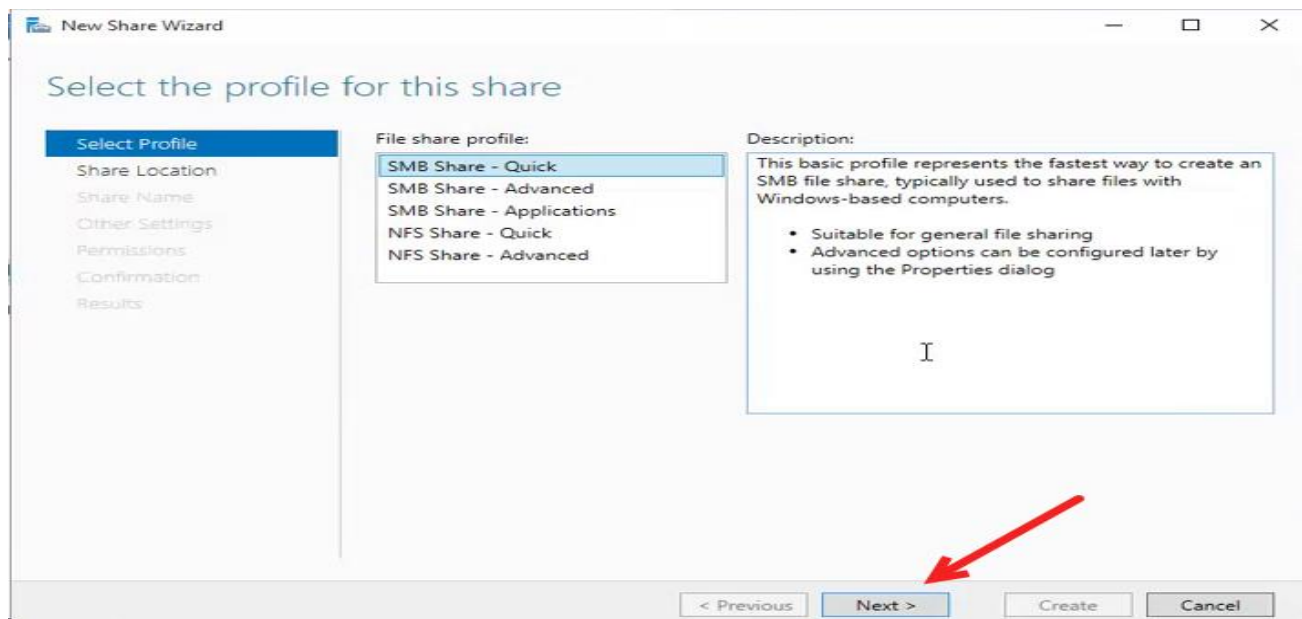
SMB Share Quick: (SMB) is the standard file sharing used by all versions of Windows. SMB Share Quick provides basic SMB sharing with full share and NTFS permission.

SMB Share Advanced: Provides SMB sharing with full share and NTFS permission and access to services provided by File Server Resource Manager.

SMB Share Application: Provides SMB sharing with settings suitable for Hyper-V and other applications.

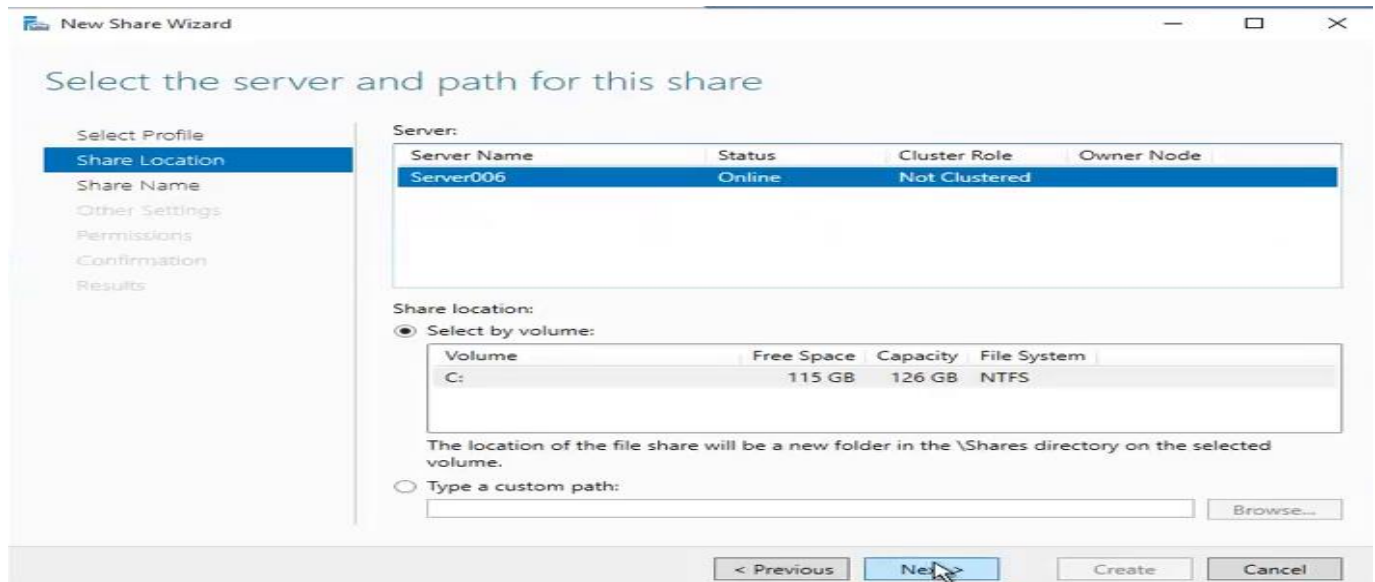
NFS Share Quick: (NFS) is the standard file sharing protocol used by most UNIX, Linux. NFS Share Quick provides NFS sharing with authentication permission and access to services provided by File Resource Manager.

NFS Share Advanced: Provides NFS Sharing with authentication and permission and access to services provided by File Resource Manager.



Share Profile

Now select the server and select a volume on the server or specify the folder path you want to share. To share a custom path, choose Type a custom path and browse the folder then click Next.



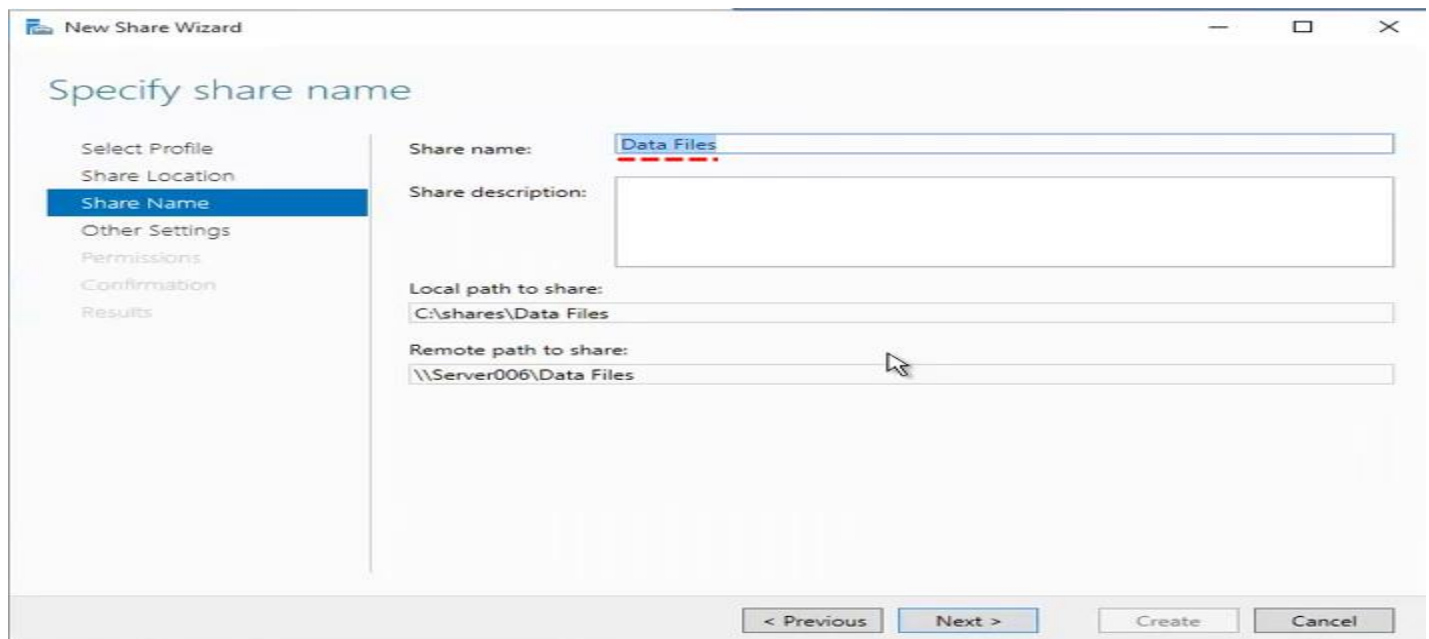
The screenshot shows the 'New Share Wizard' window at the 'Select the server and path for this share' step. On the left, a navigation pane lists steps: Select Profile, Share Location (selected), Share Name, Other Settings, Permissions, Confirmation, and Results. The main area is divided into two sections. The 'Server:' section contains a table with columns: Server Name, Status, Cluster Role, and Owner Node. The table has one row: Server006, Online, Not Clustered. The 'Share location:' section has two options. The first option, 'Select by volume:', is selected with a radio button. It contains a table with columns: Volume, Free Space, Capacity, and File System. The table has one row: C:, 115 GB, 126 GB, NTFS. Below this table, a text box states: 'The location of the file share will be a new folder in the \Shares directory on the selected volume.' The second option, 'Type a custom path:', is unselected. It has a text box and a 'Browse...' button. At the bottom, there are four buttons: '< Previous', 'Next >' (highlighted with a mouse cursor), 'Create', and 'Cancel'.

Server Name	Status	Cluster Role	Owner Node
Server006	Online	Not Clustered	

Volume	Free Space	Capacity	File System
C:	115 GB	126 GB	NTFS

Share path

On the specify share name page, type a share name and click Next.



The screenshot shows the 'New Share Wizard' window at the 'Specify share name' step. On the left, the navigation pane lists steps: Select Profile, Share Location, Share Name (selected), Other Settings, Permissions, Confirmation, and Results. The main area has four input fields. The 'Share name:' field contains 'Data Files' and has a red dashed underline. The 'Share description:' field is empty. The 'Local path to share:' field contains 'C:\shares\Data Files'. The 'Remote path to share:' field contains '\\Server006\Data Files'. At the bottom, there are four buttons: '< Previous', 'Next >' (highlighted with a mouse cursor), 'Create', and 'Cancel'.

Share Name

Here you have to select the sharing options you need, if you don't know the definition read then mark them if required.

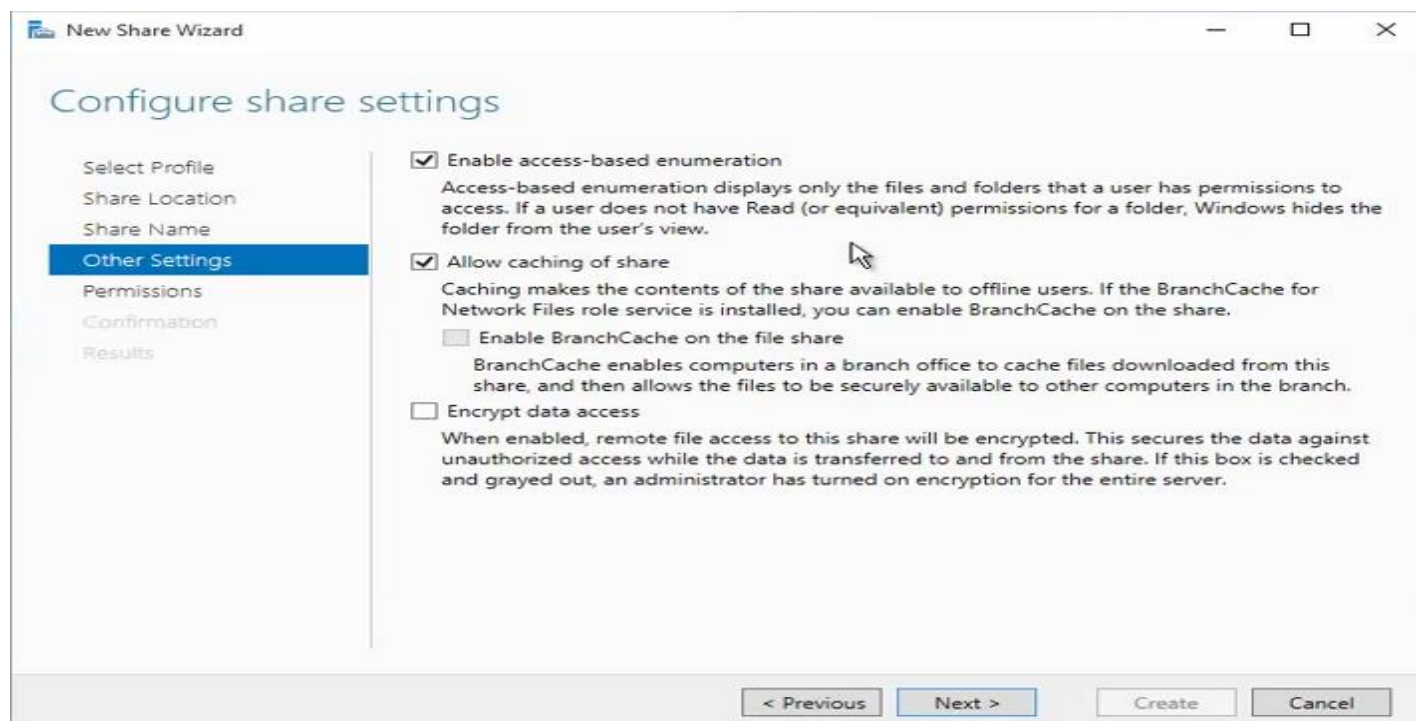
Select any or all of the following options:

Enable Access-Based Enumeration: Prevents users from seeing files and folders they do not have permission to access.

Allow Caching Of Share: Enables offline users to access the contents of this share.

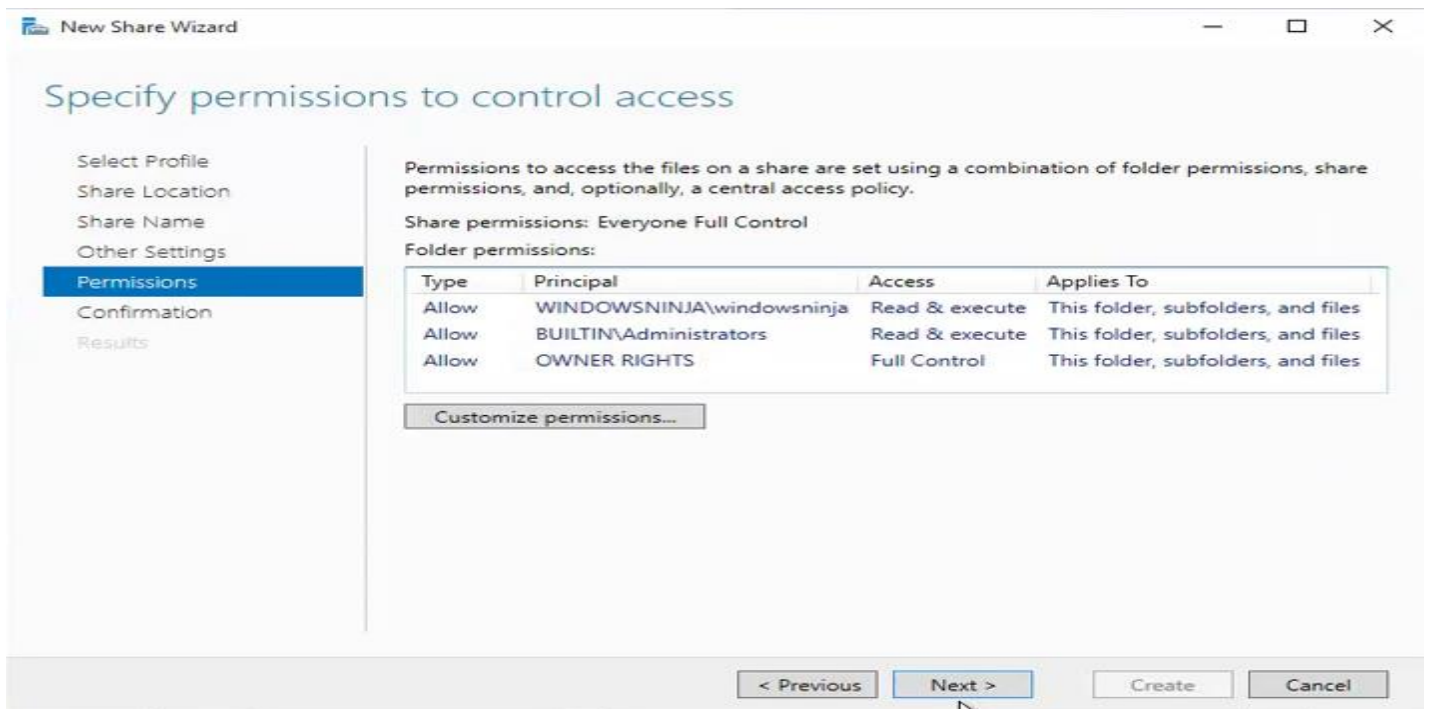
Enable BranchCache On The File Share: Enables BranchCache servers to cache files accessed from this share.

Encrypt Data Access: Causes the server to encrypt remote file access to this share.



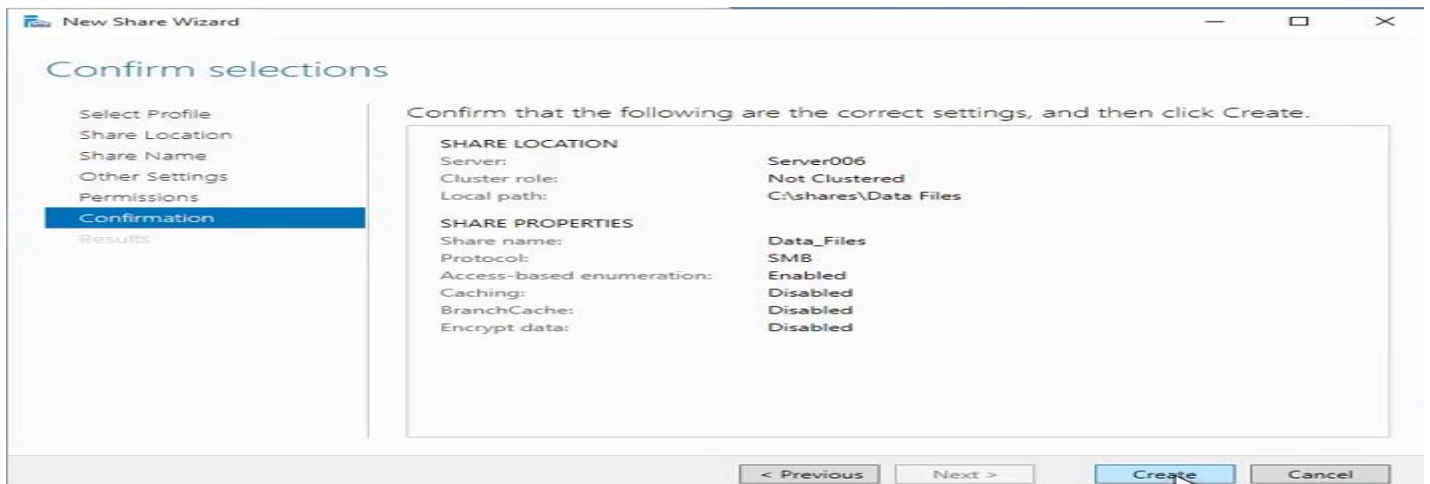
Configure Share Settings

Now Specify the permissions to control access read or write by clicking on Customize permissions then add, remove or change users permission and click Next.



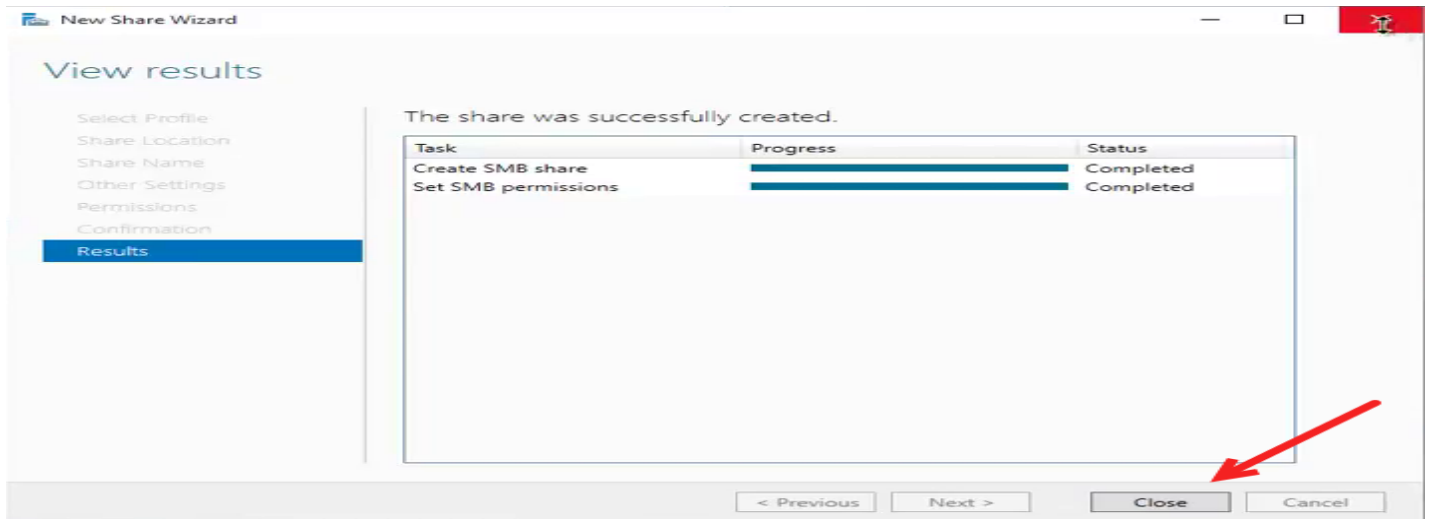
Permissions

Confirm that the shared settings are configured properly and click Create.



Confirmation

The share was created successfully with its appropriate permissions, click close.



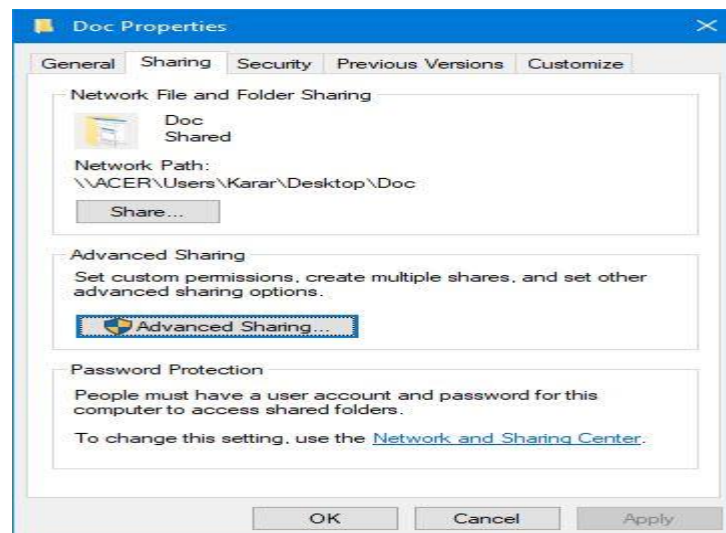
Shared

To check the folder shared go to Network>your computer then your shared files will be there.

Also you can see them by typing \\yourcomputername\ in the file explorer.

Configure file Shares using file Explorer

Navigate to the folder then right click and select Properties, click on sharing tab then click Advanced sharing.

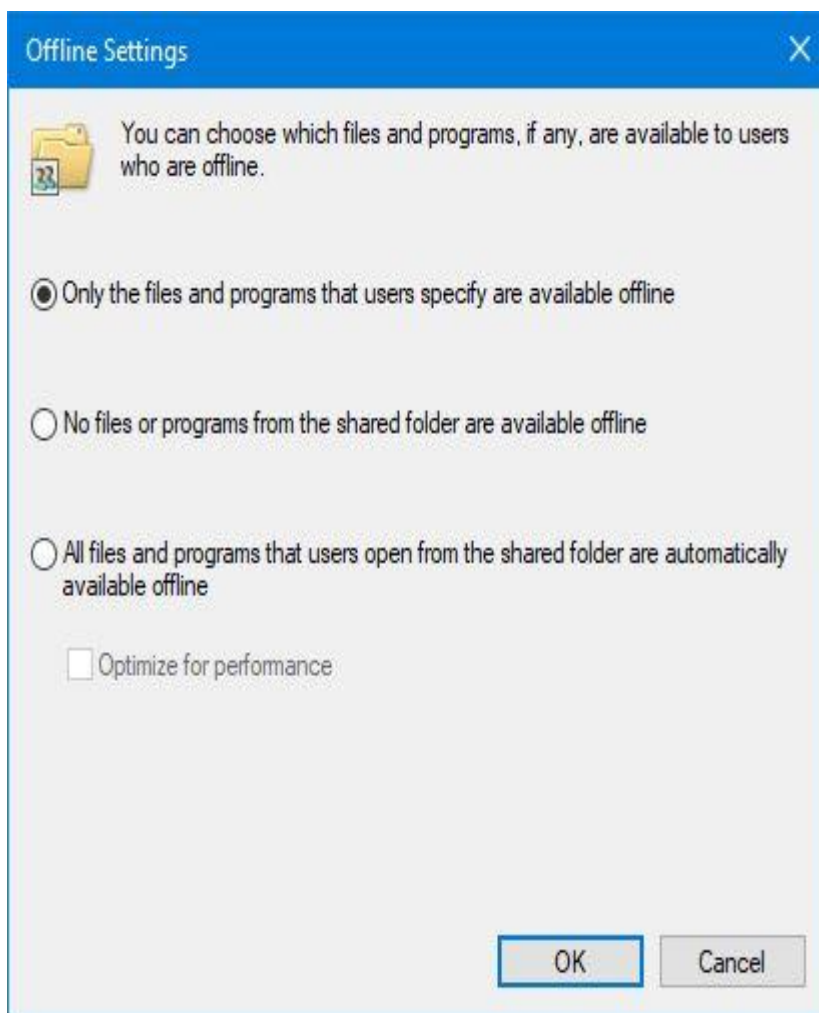


Sharing

Mark on Share this folder and enter a share name then click on permissions to add, remove or change permissions of users and click ok.

When the folder sharing is configured properly, click Apply then ok. Your folder will be shared successfully.

Also, you can manage caching of the folder by clicking on caching and select the one you want. (Caching enables offline files for the users those who have enabled offline files. You can choose if the folder should be available offline or not.



Offline Settings

All right, this was all about configured file shares in windows server 2016, hope it would be helpful and informative.

24-Install Remote Server Administration Tools (RSAT)

RSAT وهي اداء تسمح بتحميل جميع الخدمات الرئيسة الموجود داخل السيرفر مثل

windows) client ويندوز Active directory users and computers, server manager, DNS,DHCP على ويندوز (seven,8,10.

Remote Server Administration Tools (RSAT) enables IT administrators to remotely manage roles and features in Windows Server 2019, Windows Server 2016, Windows Server 2012 R2, Windows Server 2012, Windows Server 2008, and Windows Server 2008 R2 from a computer that is running Windows 10, Windows 8.1, Windows 8, Windows 7, or Windows Vista.

You cannot install RSAT on computers that are running Home or Standard editions of Windows. You can install RSAT only on Professional or Enterprise editions of the Windows client operating system

RSAT allows administrators to run snap-ins and tools on a remote computer to manage features, roles and role services. The software includes tools for cluster-aware updating, Group Policy management and Hyper-V management, as well as the Best Practices Analyzer.



RSAT runs on Windows 7, Windows 8, Windows Server 2008, Windows Server 2008 R2 and Windows Server 2012.

How to Install Remote Server Administration Tools (RSAT) on Windows 7

After downloading either the 64-bit or 32-bit version, based upon your needs, you will then install it on any Windows 7 system that will be used to remotely manage your servers.

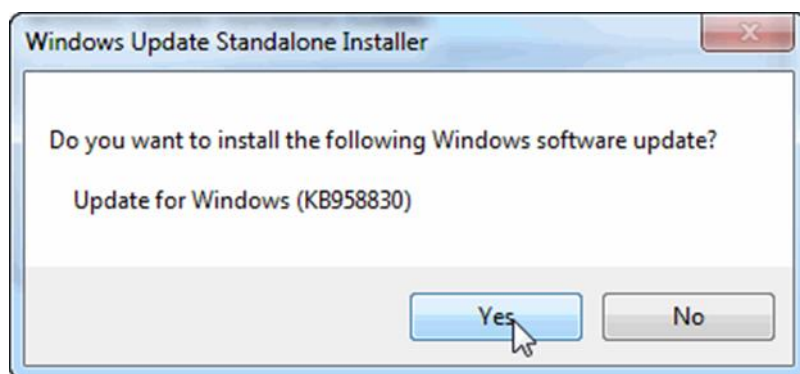
Note: In order to use RDP to manage your servers you do not need to install anything! The RSAT package will allow you to connect to the servers on your network as though you were using one of the tools on one of your servers, and allow you to perform all the management tasks on your network

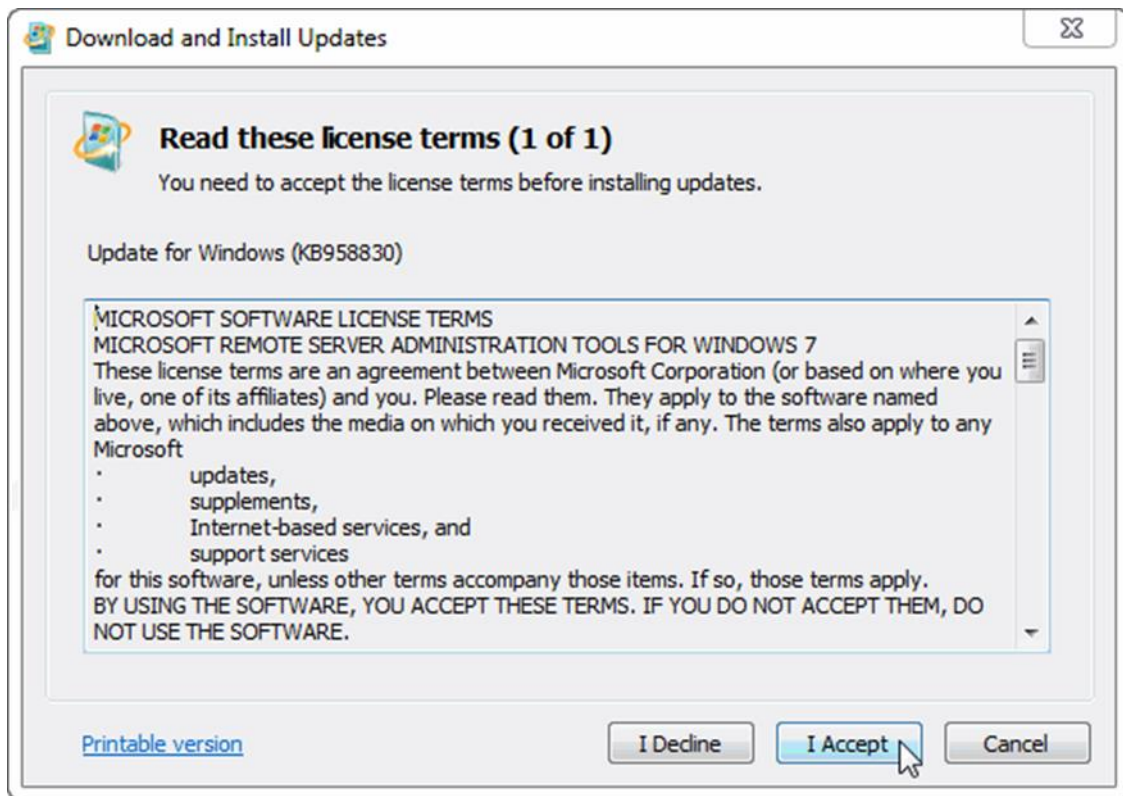
you must be either a member of the Administrators group on the computer on which you want to install the Administration Tools pack, or you must be logged on to the computer by using the built-in Administrator account.

Remote Server Administration Tools Installation Instructions;

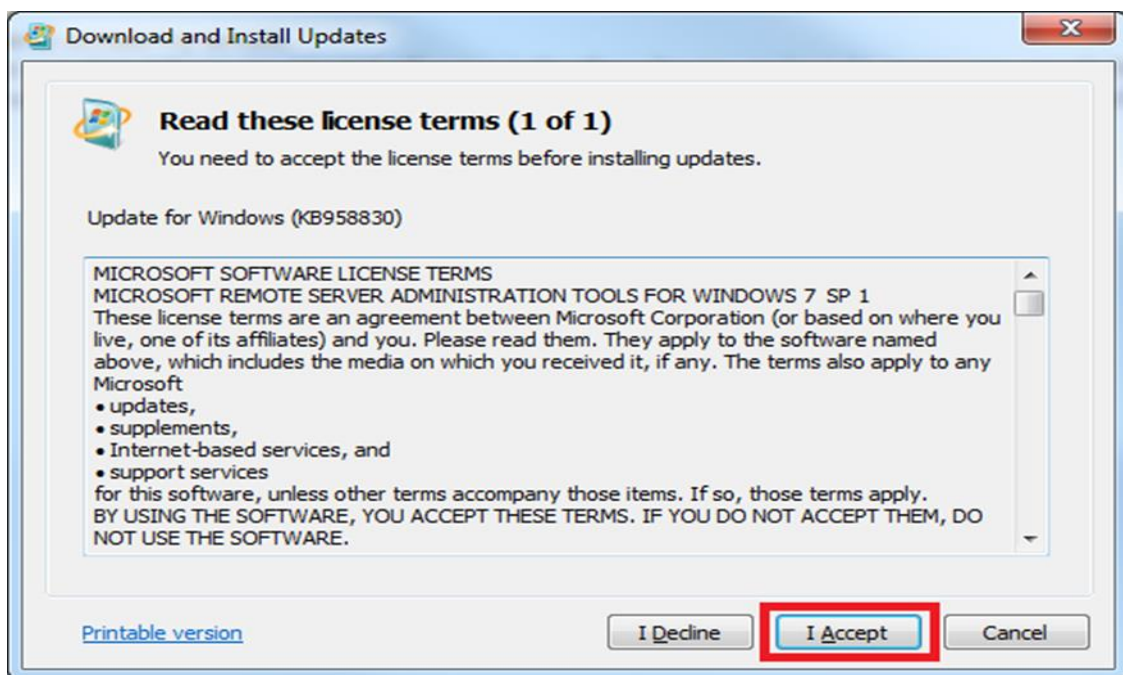
This article shows you how to download and install an important update in Windows 7. NOTE: All versions of Administration Tools Pack or Remote Server Administration Tools for Windows Vista with SP1 need to be removed from the computer before downloading this version. (Including copies in different languages)

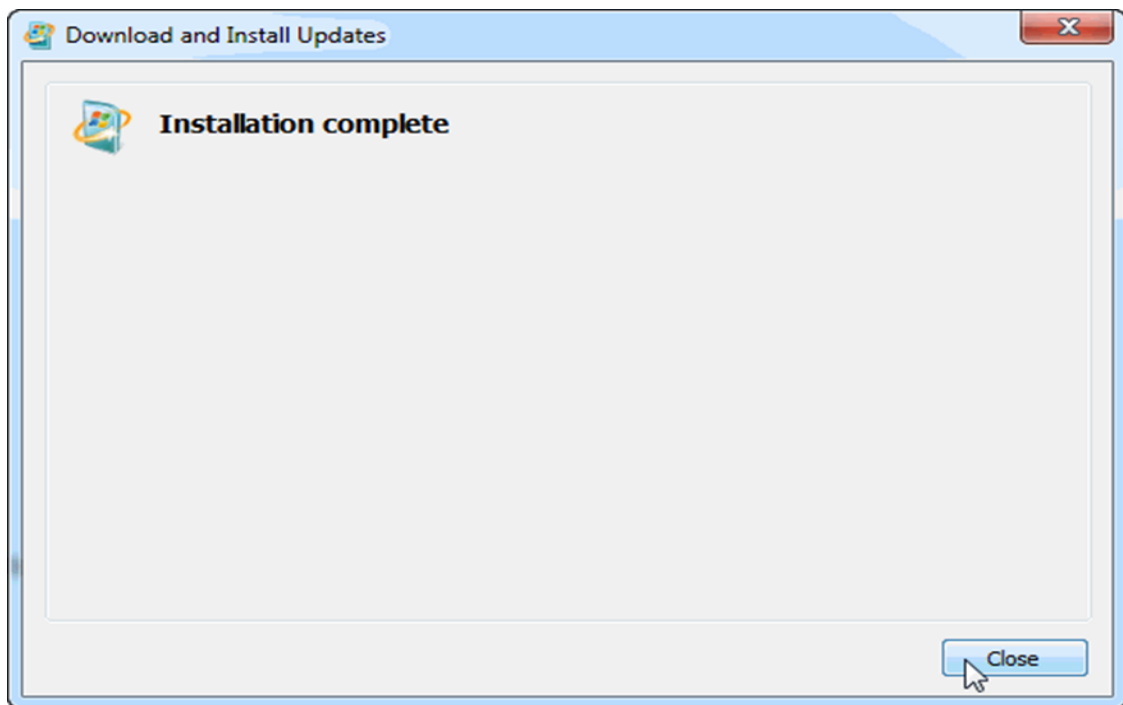
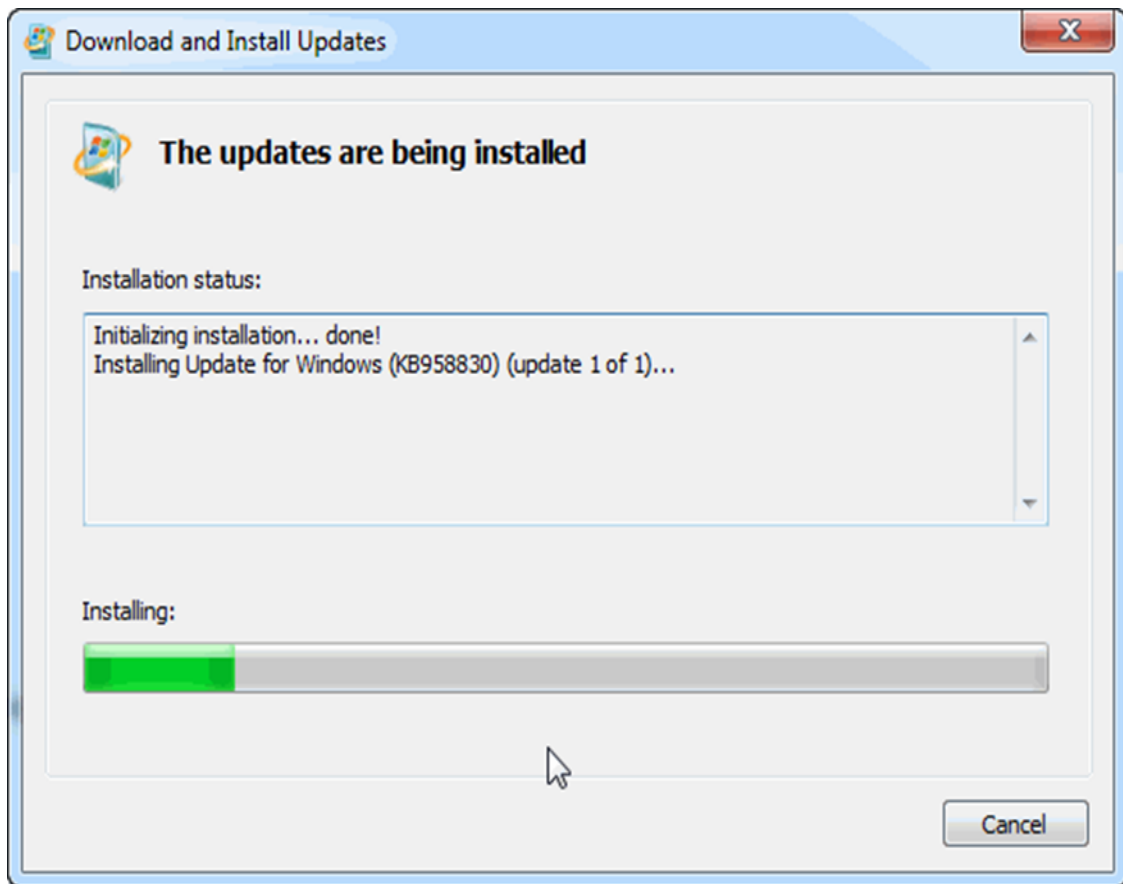
Double-click the downloaded file after choice the type version 64bit or 32bit to start the Remote Server Administration Tools for Windows 7 Setup Wizard. Follow all the steps through the installation (basically it's "Next" all the way to the "Finish" button...)



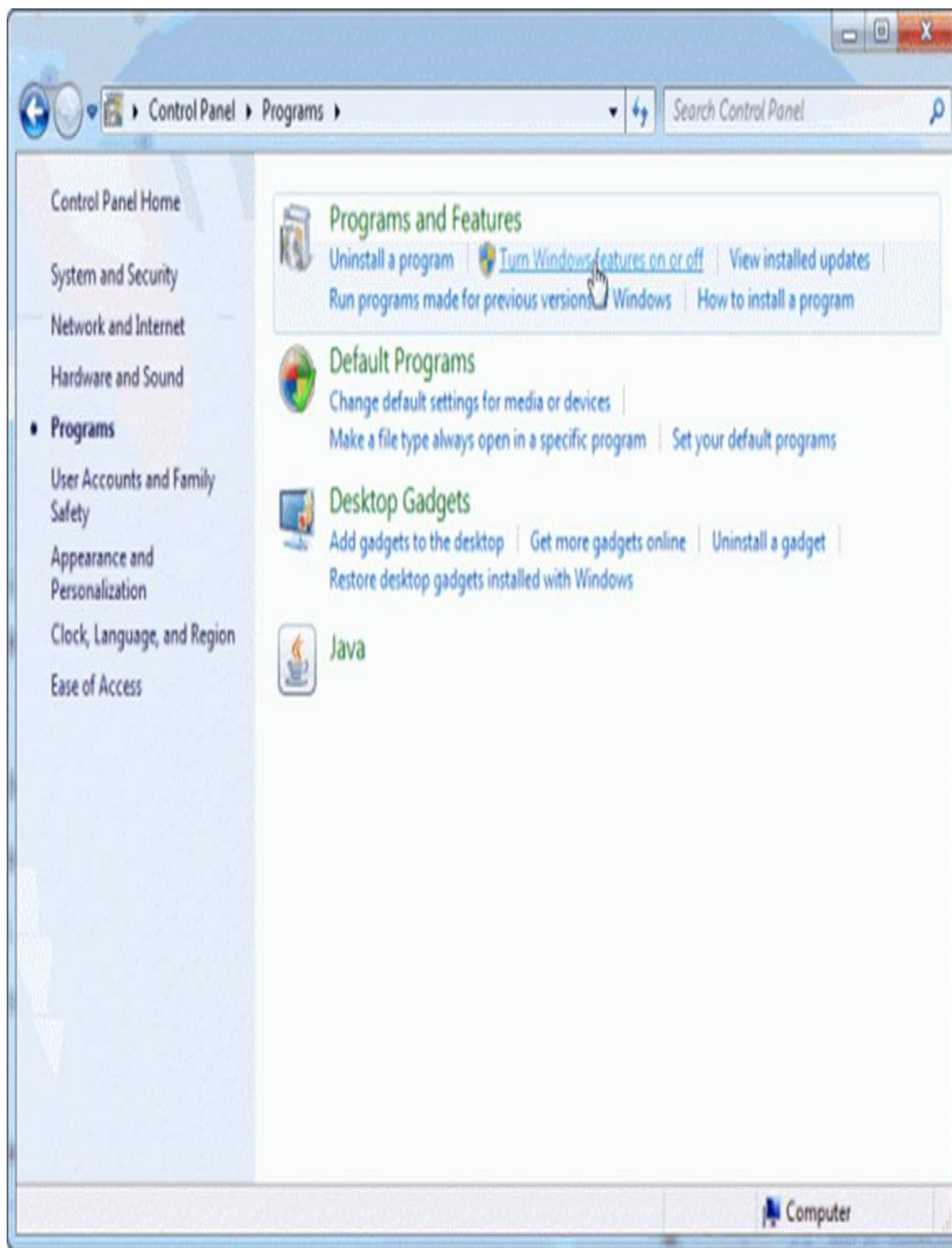


When you run the update package you will see this message, which explains that you are able to install an update – click ‘Yes’

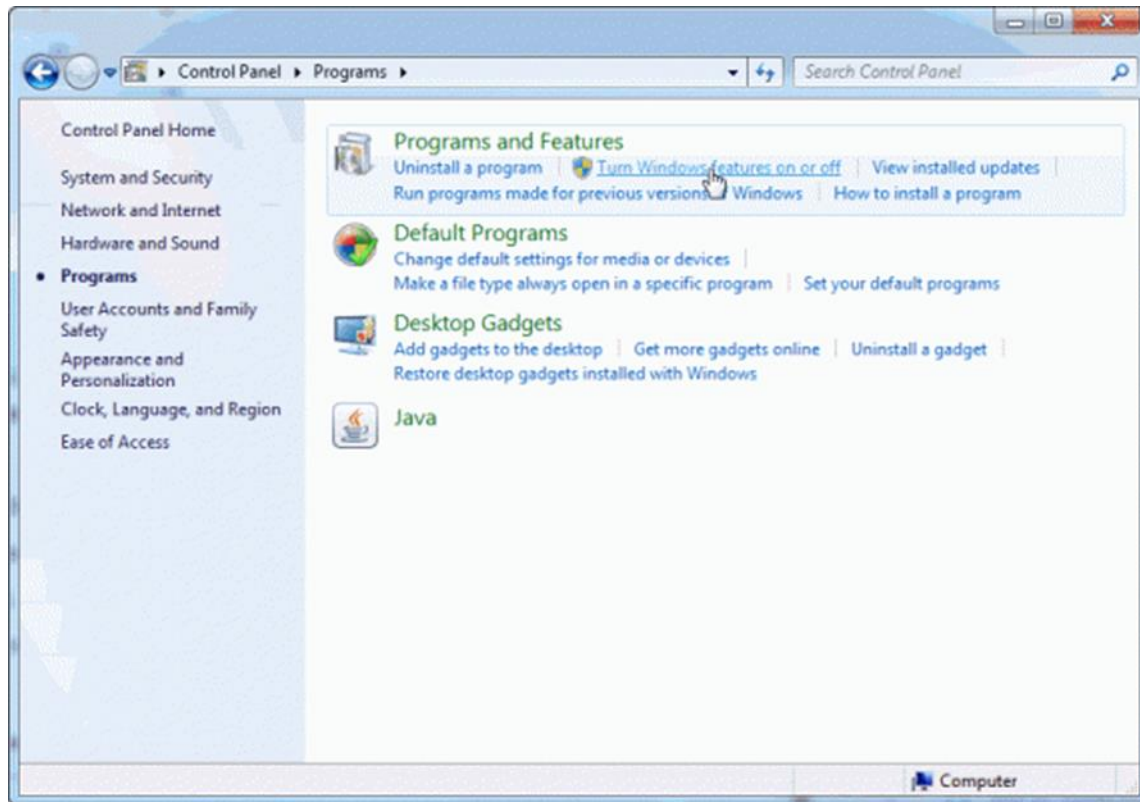




Next, click Start, click Control Panel, and then click Programs. In the Programs and Features area, click Turn Windows features on or off.



Next, click Start, click Control Panel, and then click Programs. In the Programs and Features area, click Turn Windows features on or off.



If you are prompted by User Account Control to enable the Windows Features dialog box to open, click Continue.

In the Windows Features dialog box, expand Remote Server Administration Tools. Select the remote management tools that you want to install. Click OK.

If the Start menu does not display the Administration Tools shortcut you will need to configure it:

Right-click Start, and then click Properties.

On the Start Menu tab, click Customize.

In the Customize Start Menu dialog box, scroll down to System Administrative Tools, and then select Display on the All Programs menu and the Start menu. Click OK. Shortcuts for snap-ins installed by Remote Server Administration Tools for Windows 7 are added to the Administrative Tools list on the Start menu.



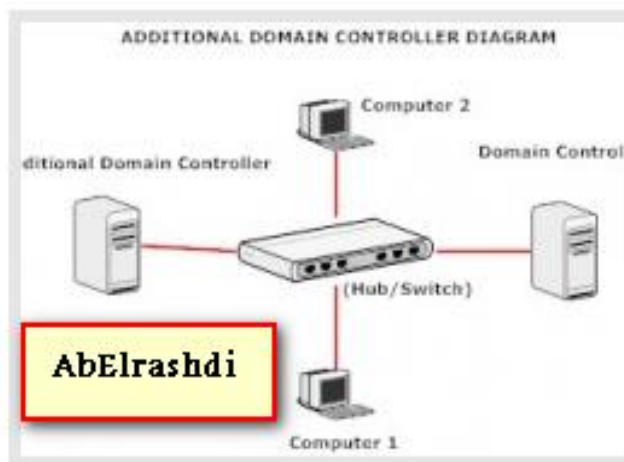
25-Additional Domain Controller

لماذا نحن نحتاج الي "نطاق اضافي" او Additional domain, الاجابة عن هذا السؤال بسيطة جدا اولاً لخدمات الوفرة او ال Services Redundancy او لتحسين المصادقة للنطاق في موقع بعيد او بالانجليزي for domain authentication improvement in remote site, حالة فشل ال server او توقفه عن العمل يكون لدينا واحد اخر الذي يستطيع ان يقوم بجميع الخدمات والوظائف الخادم الاول

اولاً انت تحتاج الي تستطيع ال sever عليك بتفعيل خصائص كارت الشبكة لكي تبدأ عملية الترقية. كما ان ال domain controller server يتطلب static IP من نفس ال subnet او ال subnet routable او القابلة للتوجيه داخل الشبكة كما ان خدمات الدليل او ال Directory Services تعتمد علي DNS Server وانت تحتاج الي الاشارة بشكل صحيح اين يتم تشغيل الخدمة, في مثالنا هذا ال additional server يستخدم DNS IP address 192.168.1.1 كما يوجد بالصورة في الاسفل:

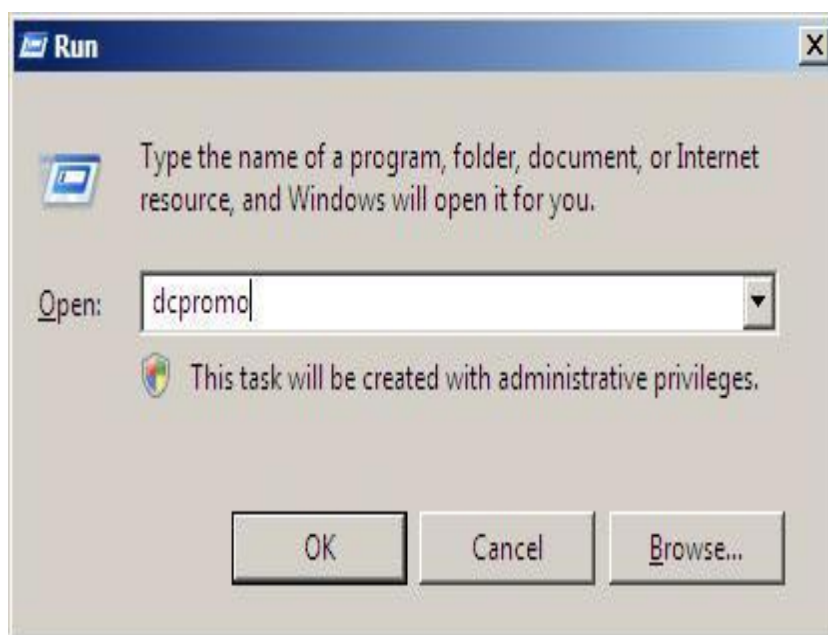
Why do we need to add additional Domain Controller? This answer is very simple: “for services redundancy” or “for domain authentication improvement in remote Site”.

- In case of server failure, we still have another one which can provide necessary services in our network, which avoids business discontinuity.

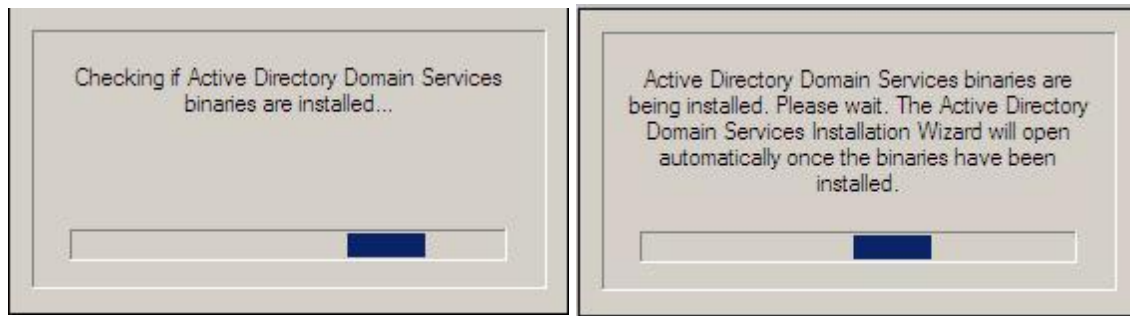


25.1- Install Additional Domain Controller windows server 2008

To set up an Additional Domain Controller, I will use the dcpromo.exe command. To use the command, click on Start > Run > and then write dcpromo > Click OK



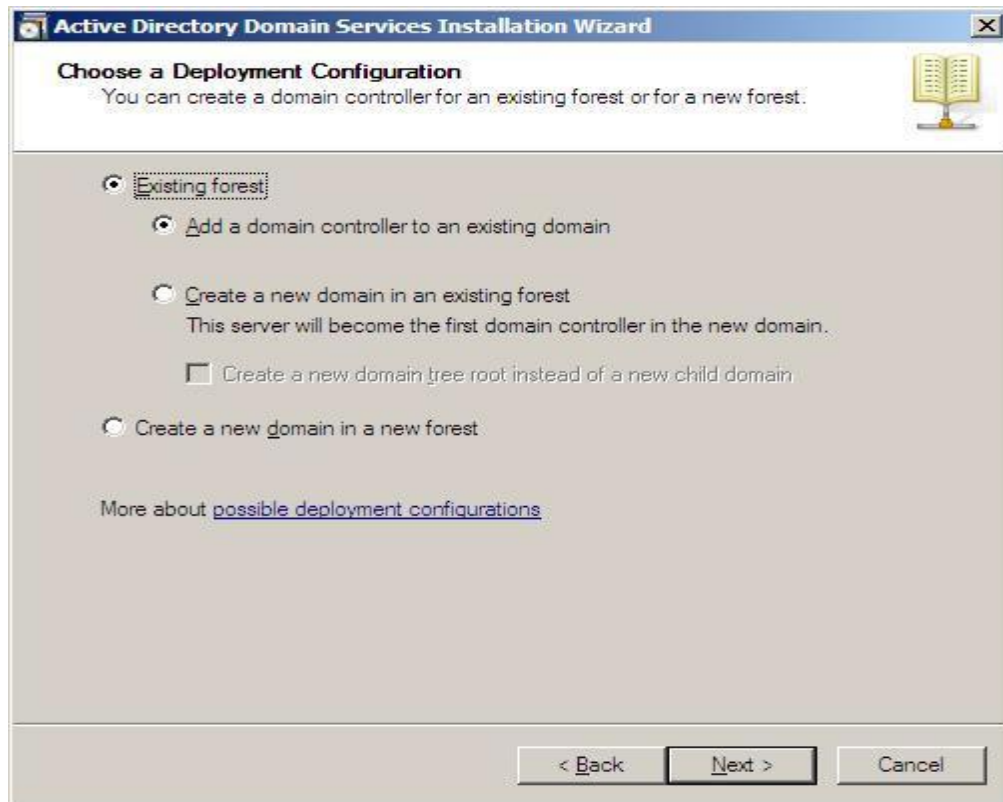
The system will start checking if Active Directory Domain Services (AD DS) binaries are installed, then will start installing them. The binaries could be installed if you had run the dcpromo command previously and then canceled the operation after the binaries were installed.



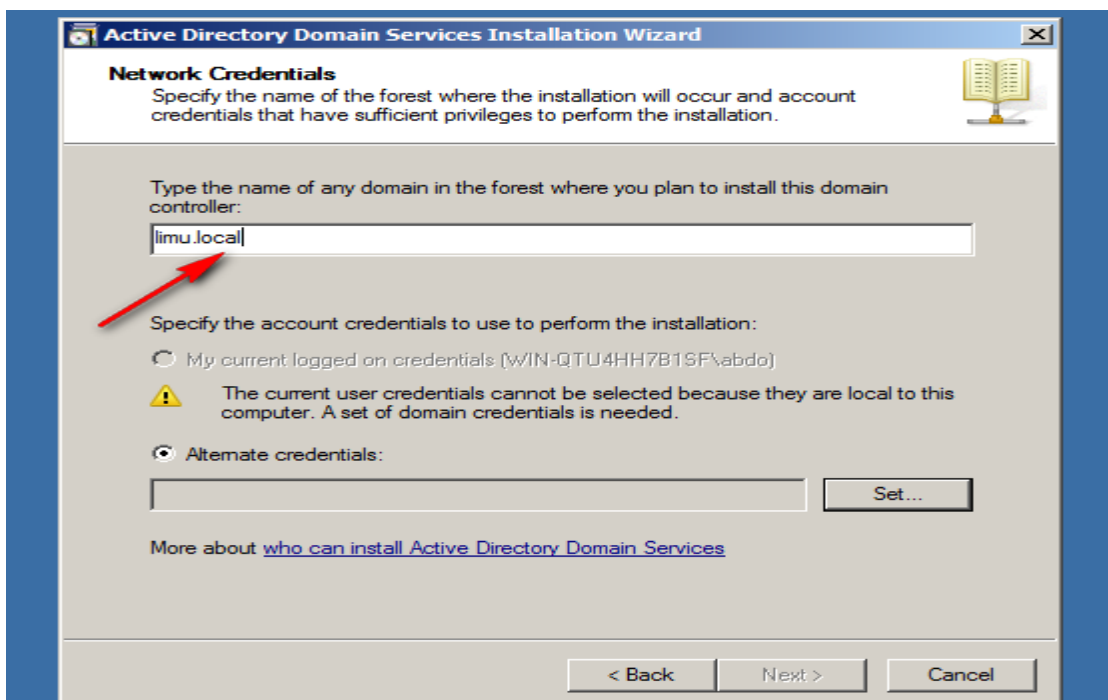
The Active Directory Domain Services Installation Wizard will start, either enable the checkbox beside Use Advanced mode installation and Click Next , or keep it unselected and click on Next



On the Choose a Deployment Configuration page, click Existing forest, click Add a domain controller to an existing domain, and then click Next.



On the Network Credentials page, type your domain name, my domain name is elmajdal.net (was set in the previous article) , so I will type LIMU.local



Additional Domain Controller

To set up an Additional Domain Controller, you will need an account that must be either a member of the Enterprise Admins group or the Domain Admins group. We have two options:

My Current logged on credentials (DomainName\Username or MachineName\Username)

Alternate credentials

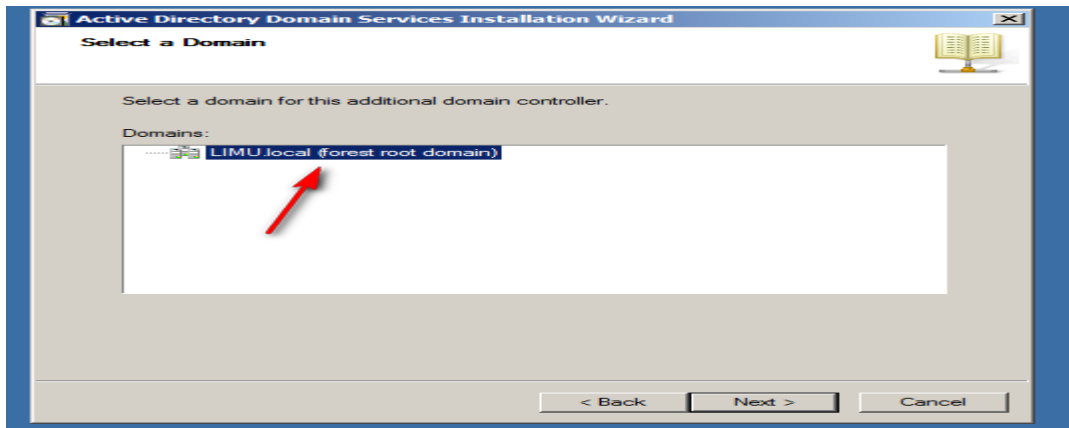
If you have previously joined this server to the domain and you are currently logged in to it with an Enterprise Admin/Domain Admin user, then you can use the first option (My current logged on credentials) . As you can see this option is grayed here, and the reason for this is below it. It is because I'm currently logged in with a local user, the machine is not a domain member. I'm left out with the second option: Alternate credentials

- To enter the Alternate credentials, click Set. In the Windows Security dialog box, enter the user name and password for an account that must be either a member of the Enterprise Admins group or the Domain Admins group > then click Next.

Enter the credentials



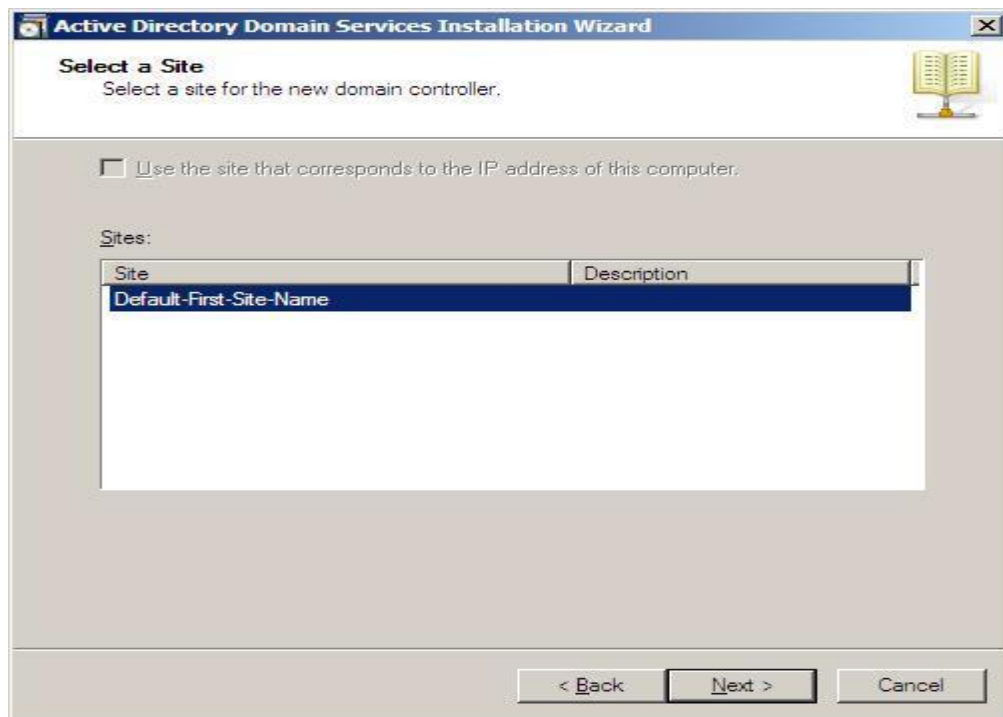
On the Select a Domain page, select the domain of the Additional Domain Controller, and then click Next, as I already have only one domain, then it will be selected by default



Select the site of domain controller

On the Select a Site page, either enable the checkbox beside Use the site that corresponds to the IP address of this computer, this will install the domain controller in the site that corresponds to its IP address, or select a site from the list and then click Next. If you only have one domain controller and one site, then you will have the first option grayed and the site will be selected by default as shown in the following image

Select the site of domain controller



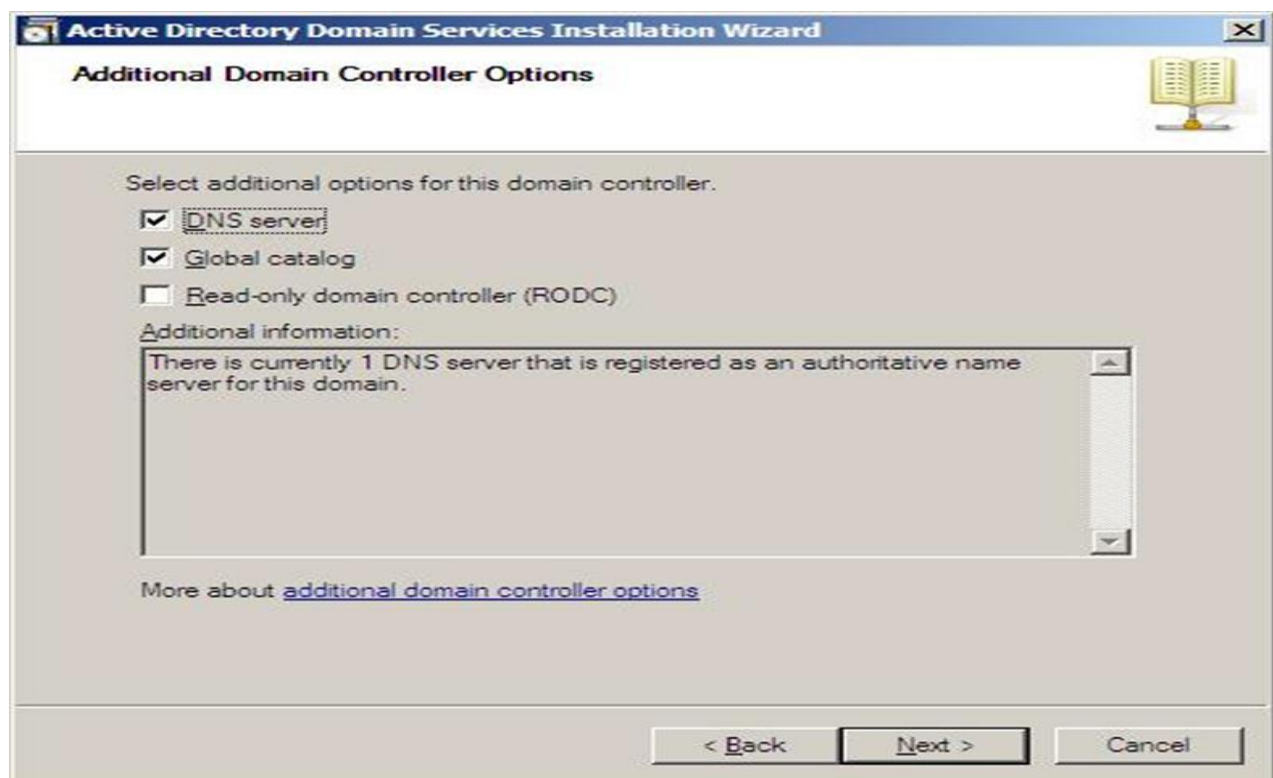
DNS and Global catalog

On the Additional Domain Controller Options page, By default, the DNS Server and Global Catalog checkboxes are selected. You can also select your additional domain controller to be a Read-only Domain Controller (RODC) by selecting the checkbox beside it

DNS and Global catalog

My primary domain controller is a DNS Server is well, and this can be verified by reading the additional information written in the below image, that there is currently 1 DNS server that is registered as an authoritative name server for this domain. I do want my Additional DC to be a DNS server and a Global catalog, so I will keep the checkboxes selected. Click Next

Additional Domain Controller



Select DNS

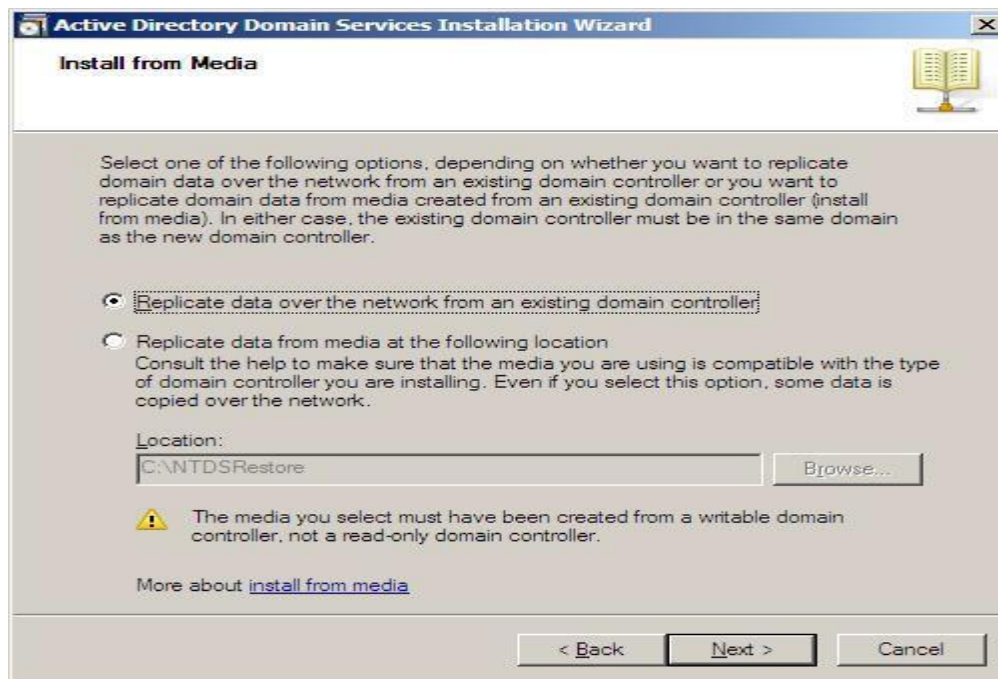
If you select the option to install DNS server in the previous step, then you will receive a message that indicates a DNS delegation for the DNS server could not be created and that you should manually create a DNS delegation to the DNS server to ensure reliable name resolution. If you are installing an additional domain controller in either the forest root domain (or a tree root domain) , you do not need to create the DNS delegation. In this case, you can safely ignore the message and click Yes.



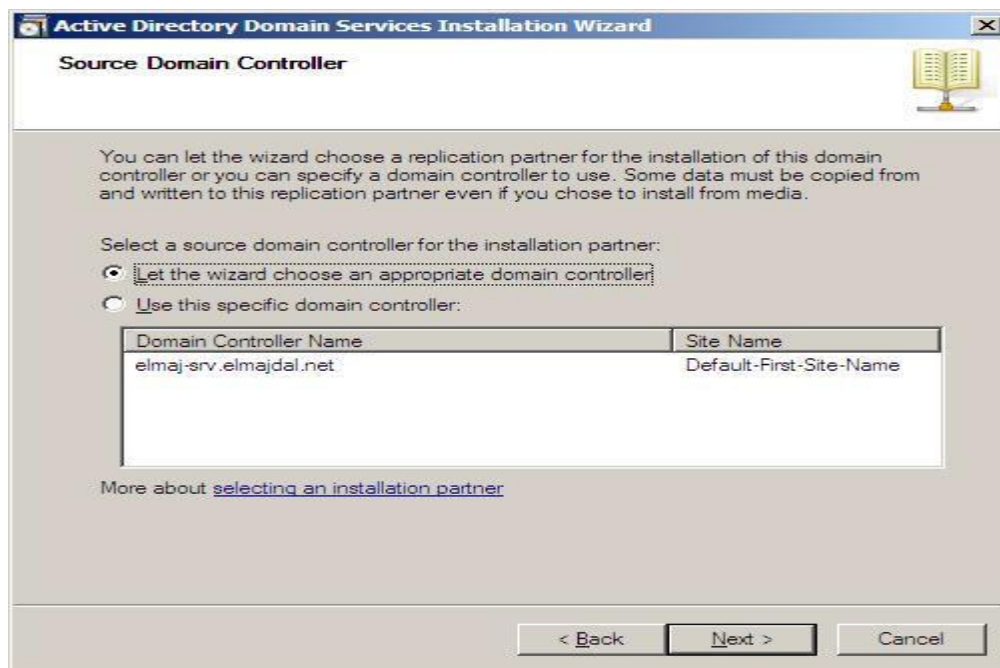
Install from media

In the Install from Media page (will be displayed if you have selected Use advanced mode installation on the Welcome page, if you didn't select it, then skip to step # 15), you can choose to either replicate data over the network from an existing domain controller, or specify the location of installation media to be used to create the domain controller and configure AD DS. I want to replicate data over the network, so I will choose the first option > click Next

Install from media



Select a source domain



Install read only control or not

If you want to choose from the list, any domain controller can be the installation partner. However, the following restrictions apply to the domain controllers that can be used as an installation partner in other situations:

A read-only domain controller (RODC) can never be an installation partner.

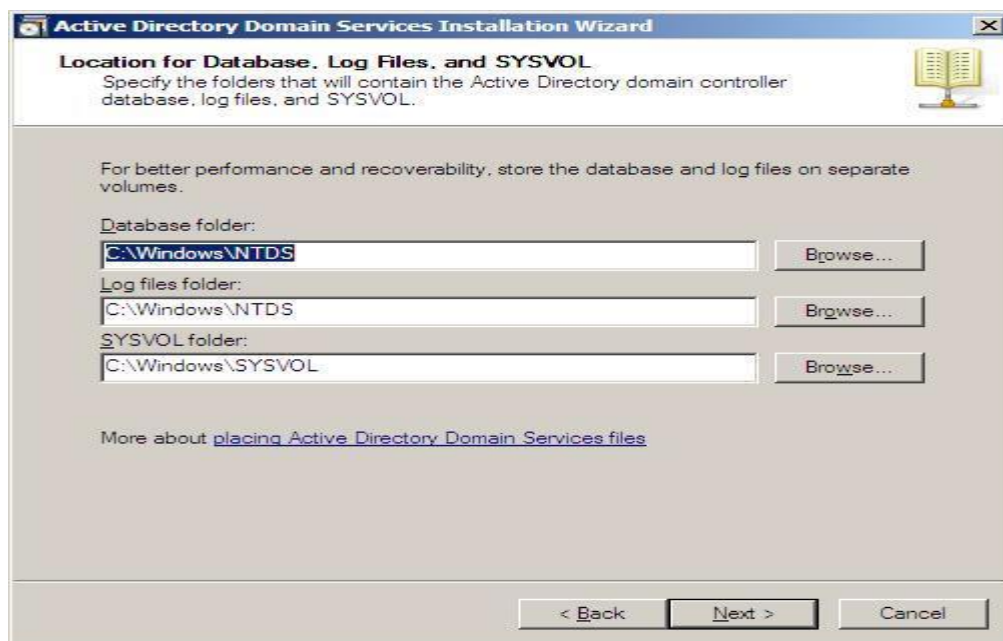
- If you are installing an RODC, only a writable domain controller that runs Windows Server 2008 can be an installation partner.

- If you are installing an additional domain controller for an existing domain, only a domain controller for that domain can be an installation partner.

Log file and sysvol

Now you will have to specify the location where the domain controller database, log files and SYSVOL are stored on the server. The database stores information about the users, computers and other objects on the network. the log files record activities that are related to AD DS, such information about an object being updated. SYSVOL stores Group Policy objects and scripts. By default, SYSVOL is part of the operating system files in the Windows directory Either type or browse to the volume and folder where you want to store each, or accept the defaults and click on Next

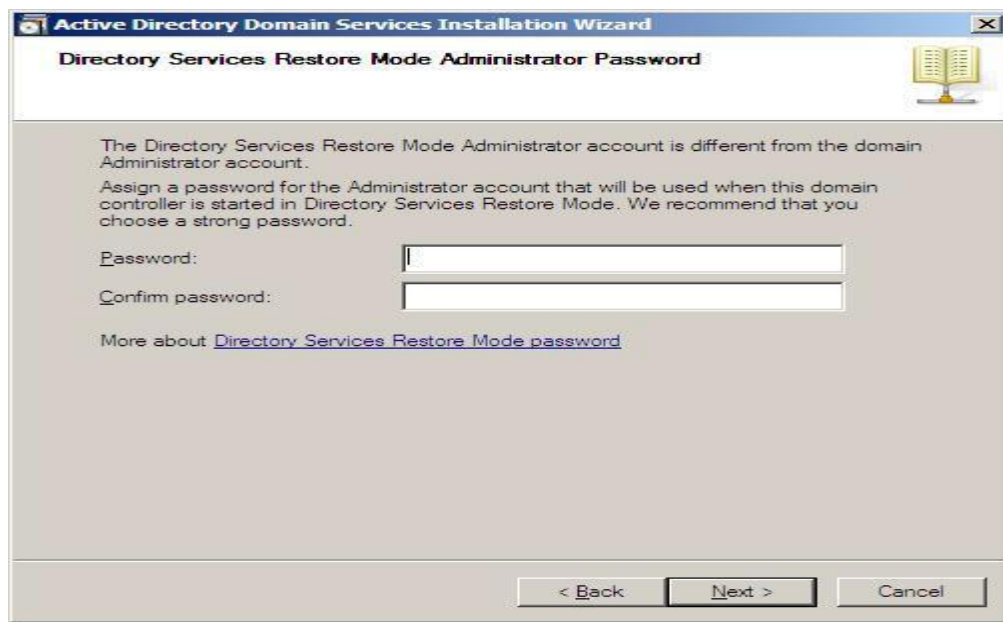
Finish installation



Backup and recovery

Note : Windows Server Backup backs up the directory service by volume. For backup and recovery efficiency, store these files on separate volumes that do not contain applications or other nondirectory files.

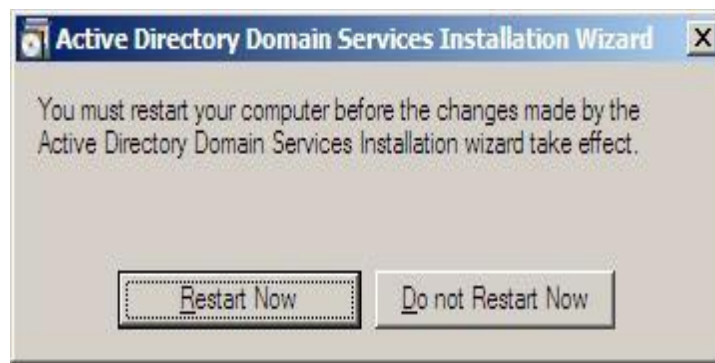
- In the Directory Services Restore Mode Administrator Password (DSRM) page, write a password and confirm it. This password is used when the domain controller is started in Directory Services Restore Mode, which might be because Active Directory Domain Services is not running, or for tasks that must be performed offline.



Finish installation

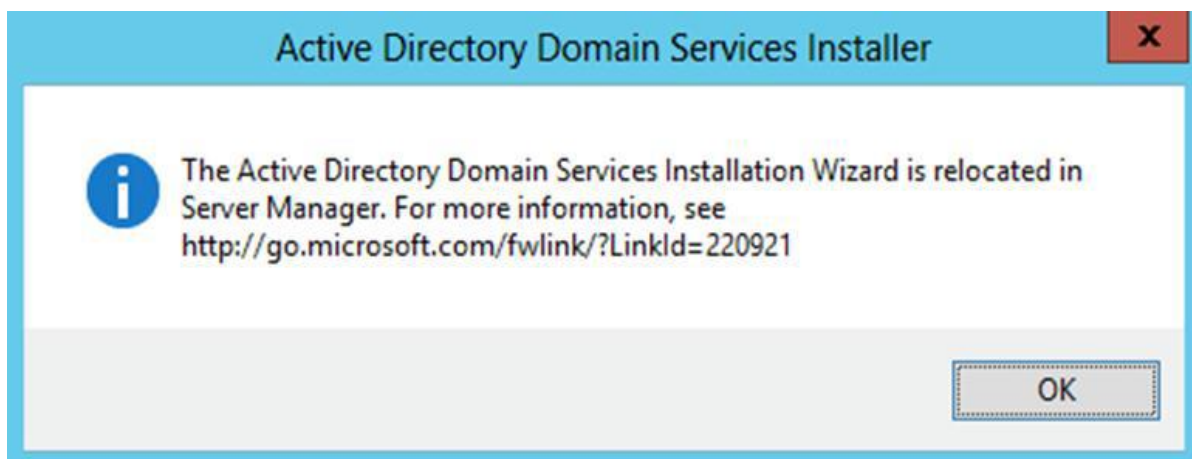
Summary page will be displayed showing you all the setting that you have set . It gives you the option to export the setting you have setup into an answer file for use to automate subsequent AD DS operations, if you wish to have such file, click on the Export settings button and save the file. Then click Next to begin AD DS installation

Active Directory Domain Services installation will be completed, click Finish, then click on Restart Now to restart your server for the changes to take effect



25.2- Add Additional Domain Controller to a windows Server 2012

When you try and run DCPromo from the explorer shell on Windows Server 2012, you will receive the following message “The Active Directory Domain Services Installation Wizard is relocated in Server Manager..

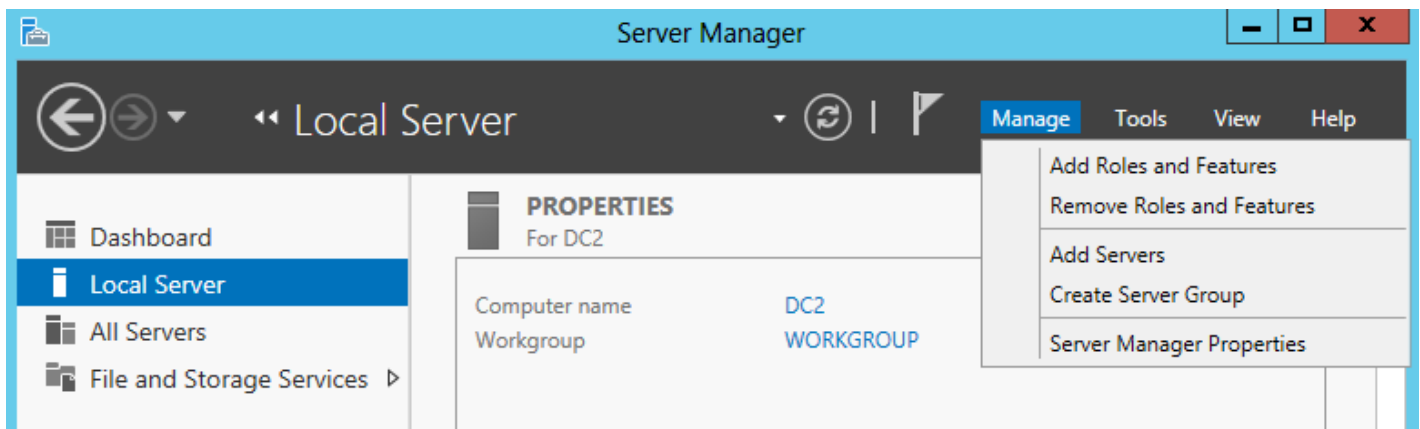


No DCPromo, what now?! DCPromo is deprecated in Windows Server 2012, so adding an additional Domain Controller is slightly different than in earlier versions. The new process is still straight forward, and the wizard will even extend the schema (to version 56) for you- meaning it's a one-stop process. Adding a Windows Server 2012 Domain Controller requires a Windows Server 2003 forest functional level or higher on your existing forest.

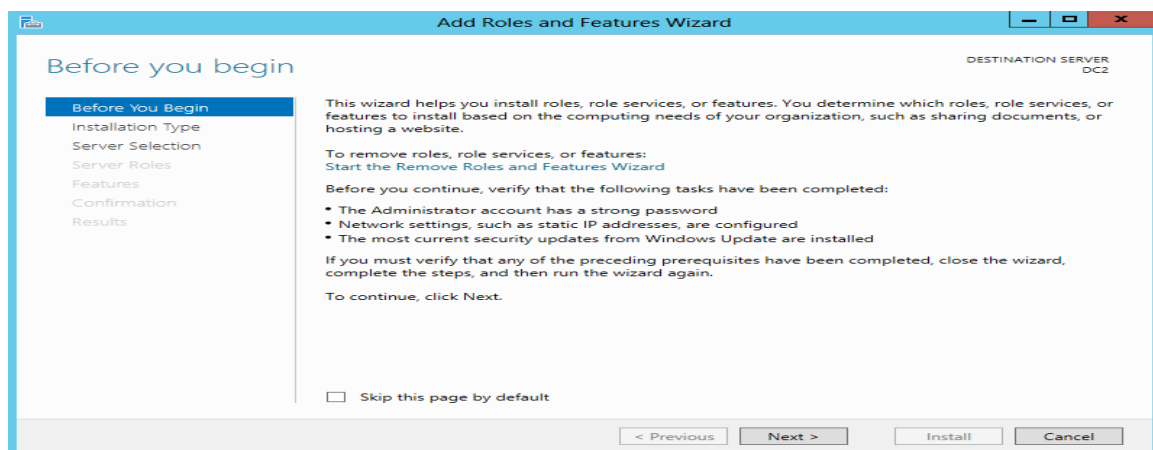
- Promoting a Server 2012 to a Domain Controller

- Open Server Manager, select Local Server on the left hand side then choose Manager -> Add roles and Features.

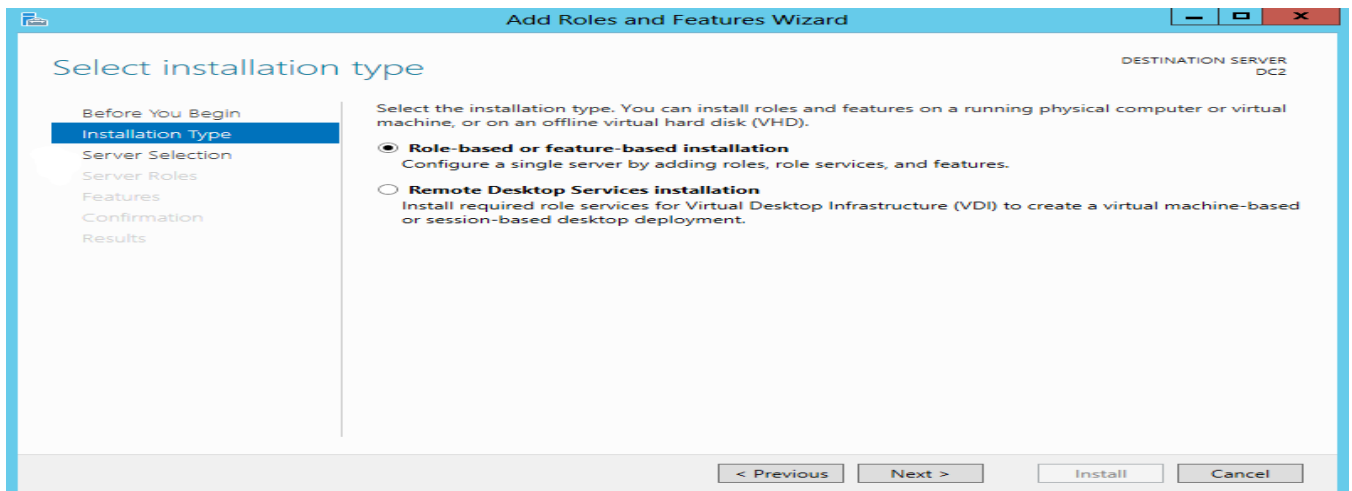
Add roles and features



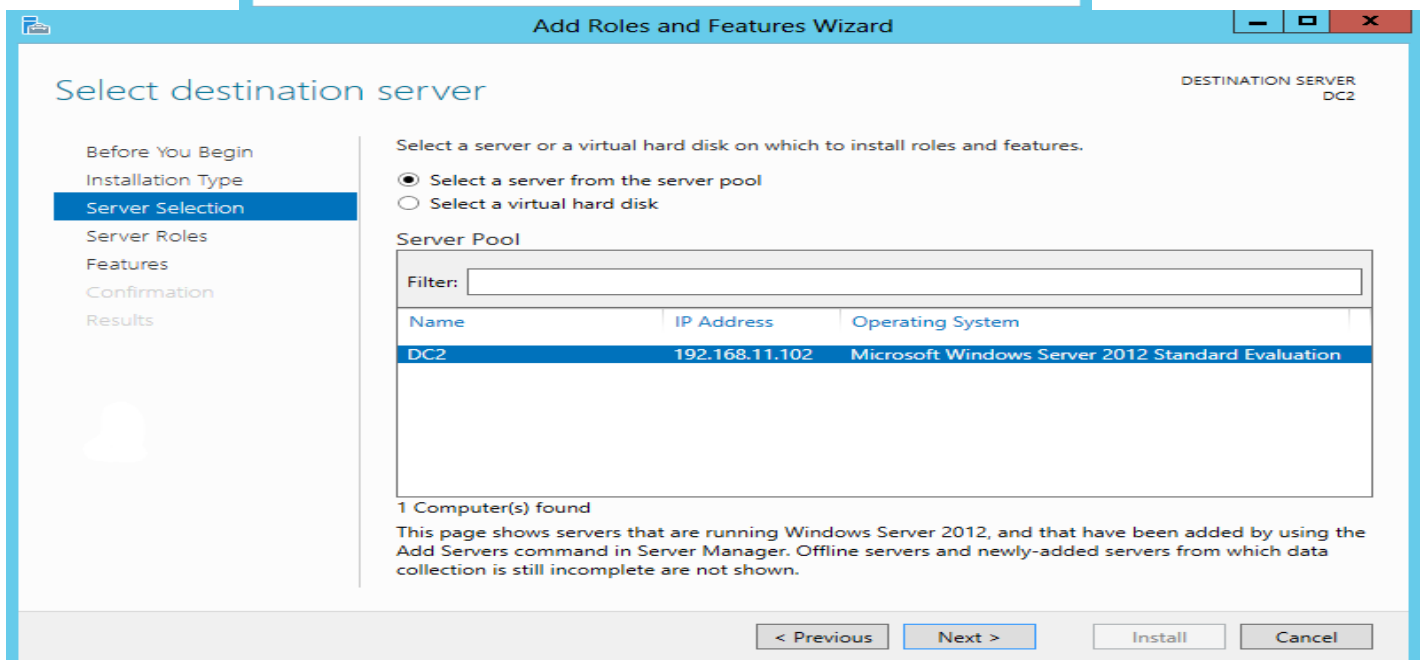
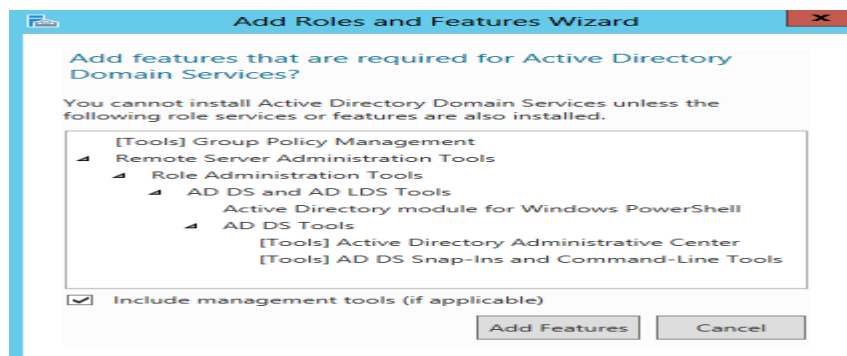
Add roles and features.



Select first option

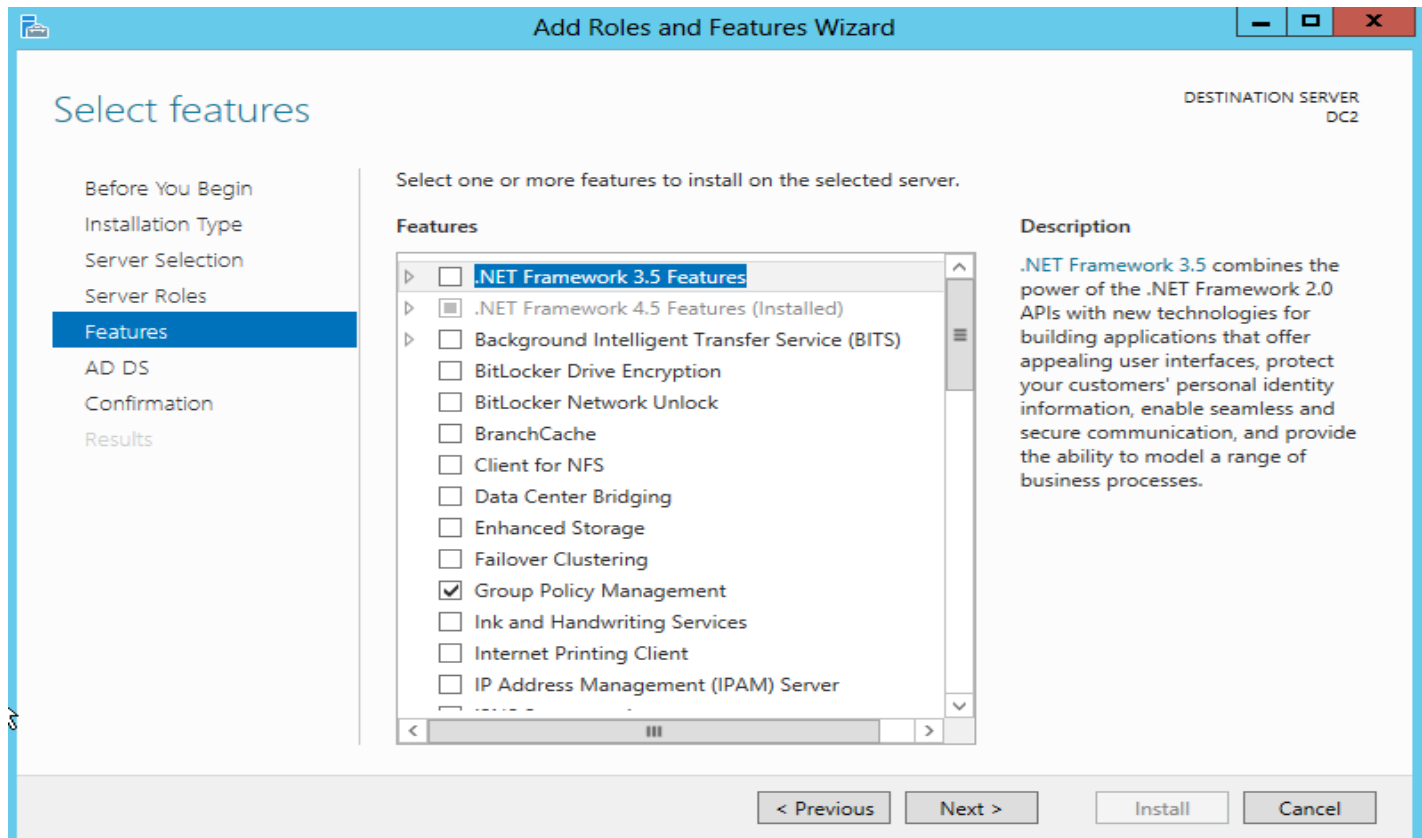


Select the server you wish to promote.

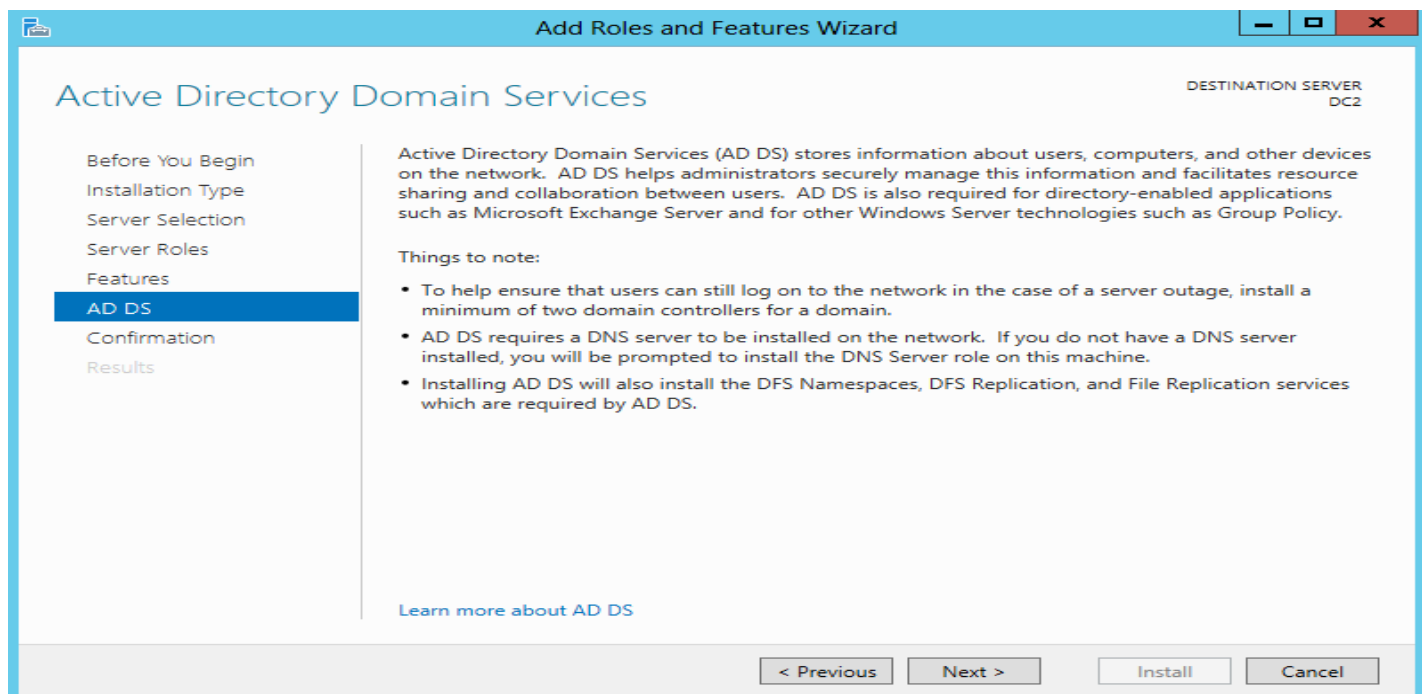


Click Add Features

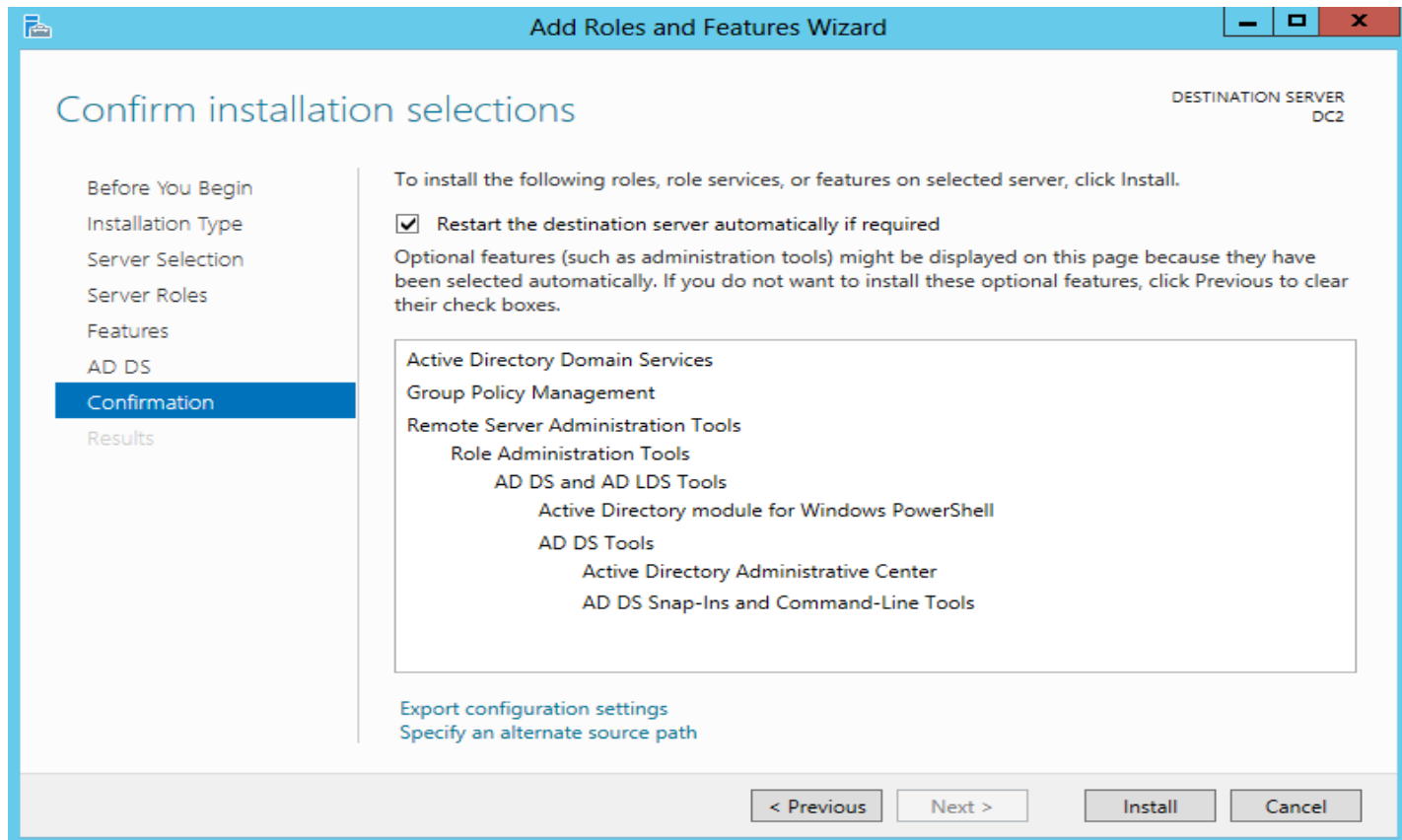
Add features



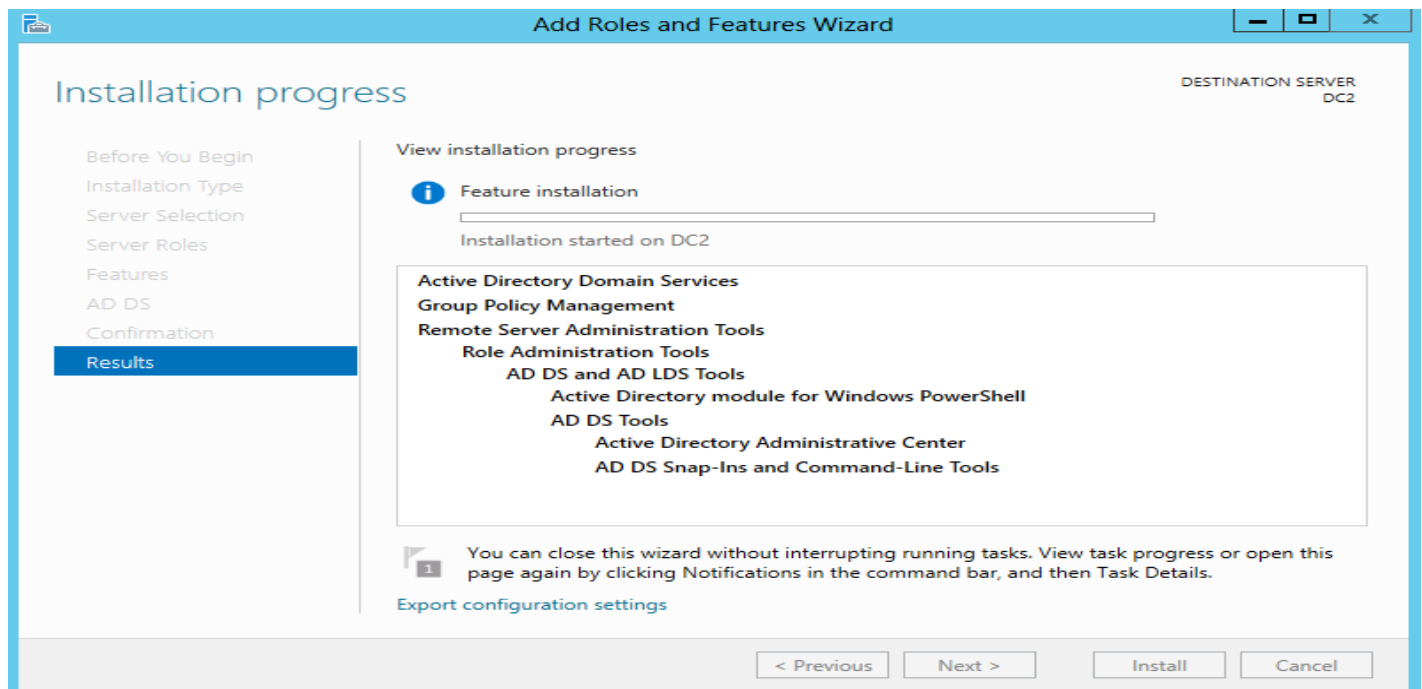
AD DS

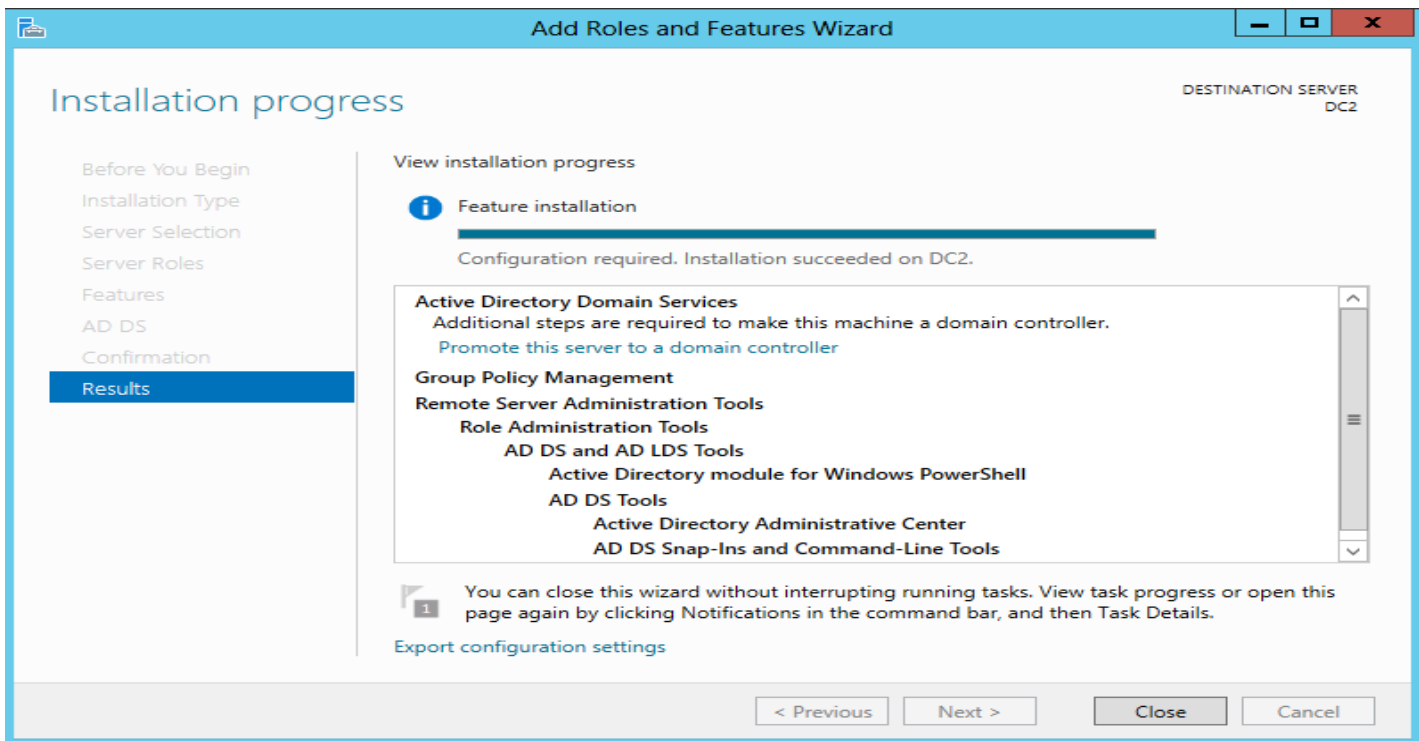


Confirmation

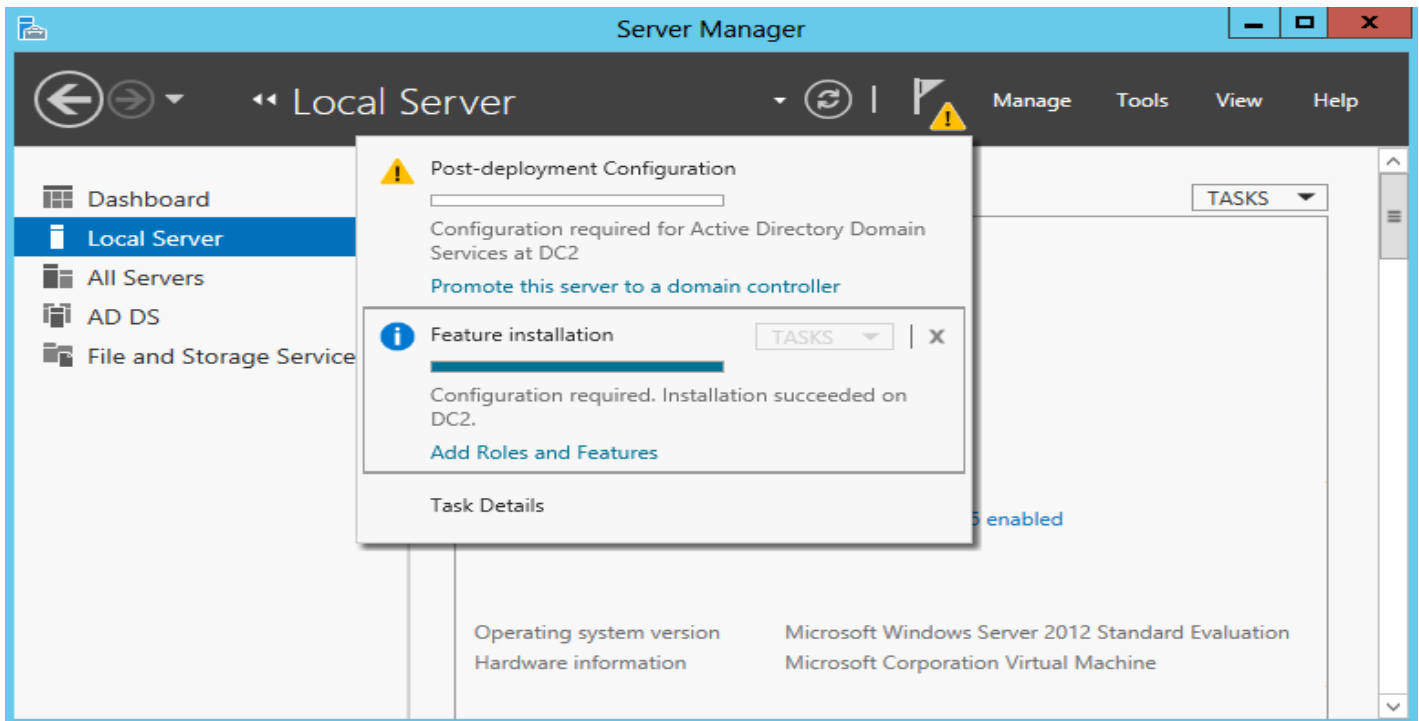


Results

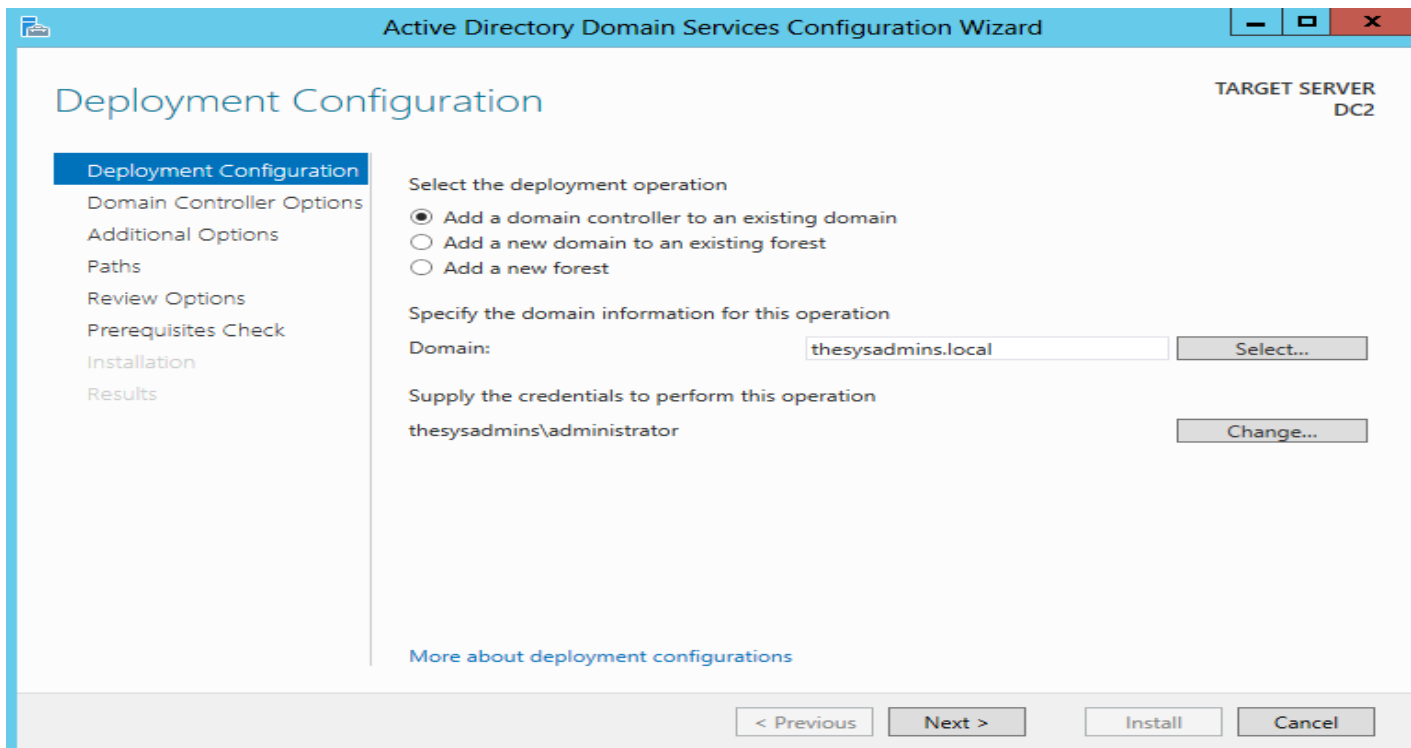




You'll now notice you have a notification, prompting you to promote this server to a domain controller.

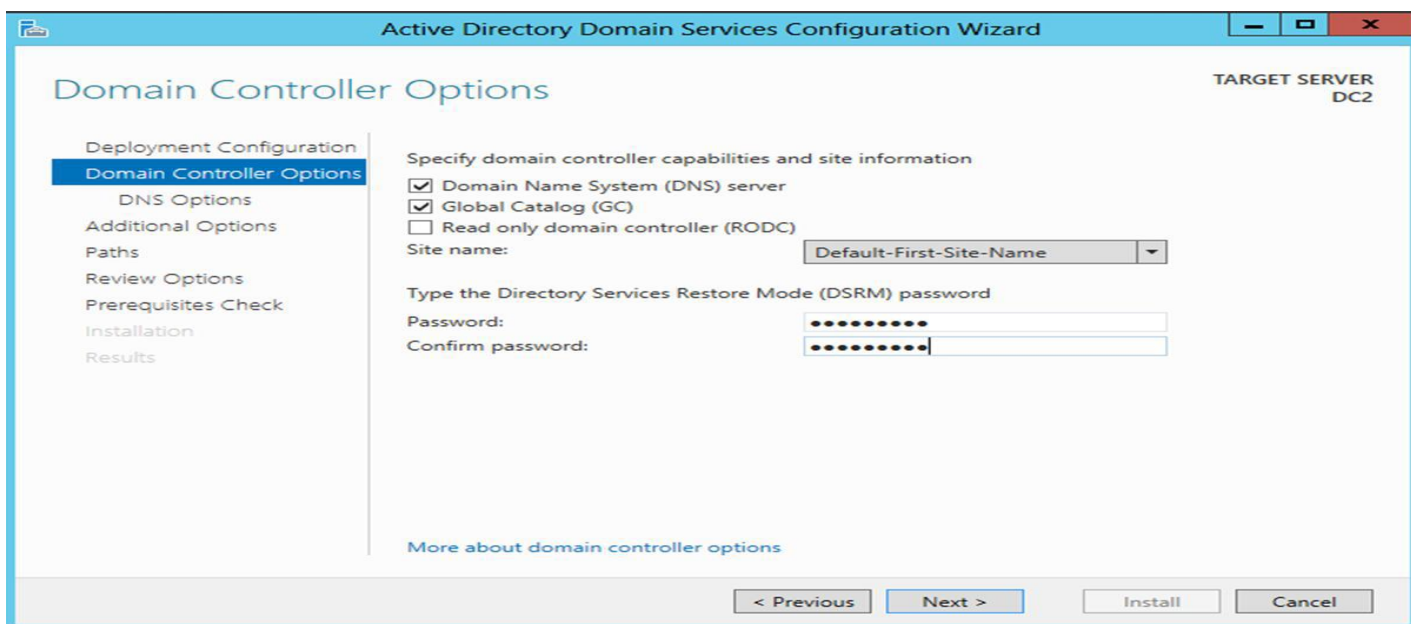


We are adding a domain controller to an existing domain, specify the domain and domain administrator credentials.



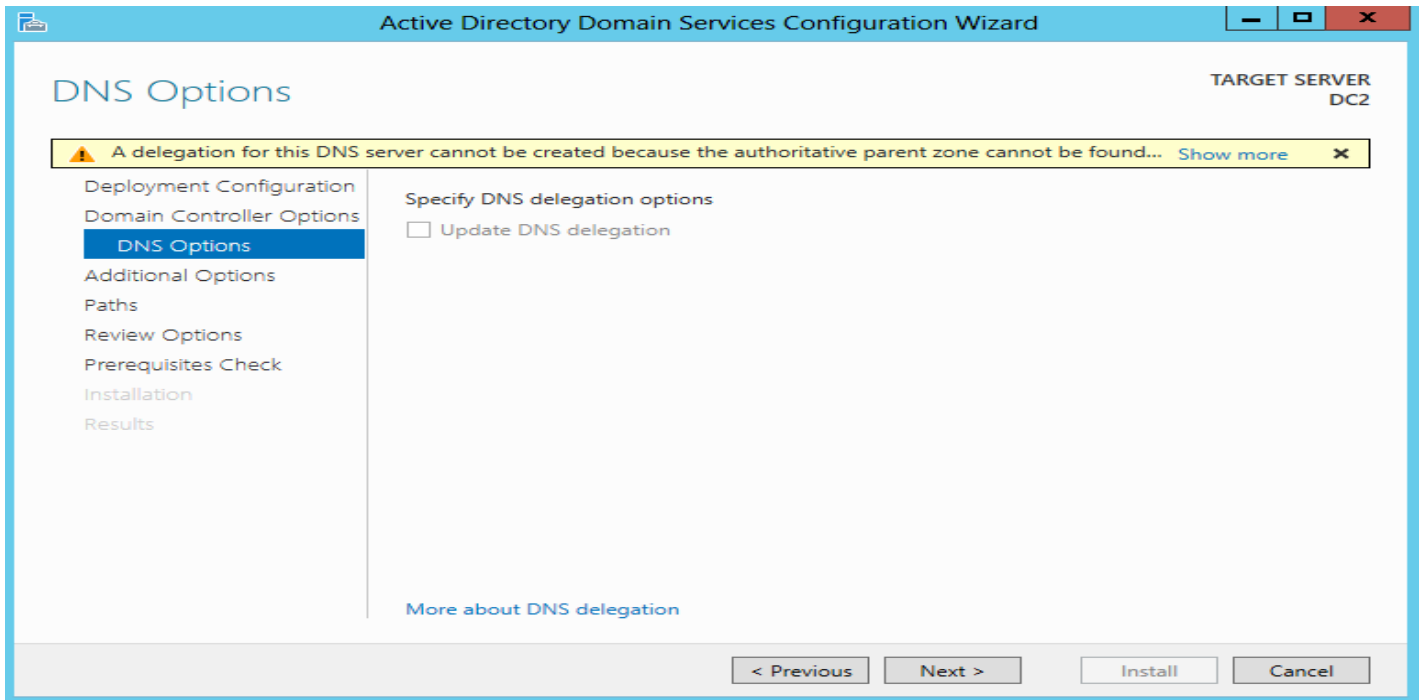
The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window, specifically the 'Deployment Configuration' step. The title bar reads 'Active Directory Domain Services Configuration Wizard'. The main heading is 'Deployment Configuration'. On the right, it says 'TARGET SERVER DC2'. The left sidebar contains a list of steps: 'Deployment Configuration' (selected), 'Domain Controller Options', 'Additional Options', 'Paths', 'Review Options', 'Prerequisites Check', 'Installation', and 'Results'. The main area has the heading 'Select the deployment operation' with three radio buttons: 'Add a domain controller to an existing domain' (selected), 'Add a new domain to an existing forest', and 'Add a new forest'. Below this is the heading 'Specify the domain information for this operation' with a 'Domain:' label and a text box containing 'thesysadmins.local', followed by a 'Select...' button. The next section is 'Supply the credentials to perform this operation' with a text box containing 'thesysadmins\administrator' and a 'Change...' button. At the bottom, there are buttons for '< Previous', 'Next >', 'Install', and 'Cancel'. A link 'More about deployment configurations' is also present.

It will make the additional DC a DNS and GC by default, we do not want to make this a Read Only Domain Controller. You have the option to add the DC to a particular Site. Enter your DSRM password (as usual, keep this safe!).

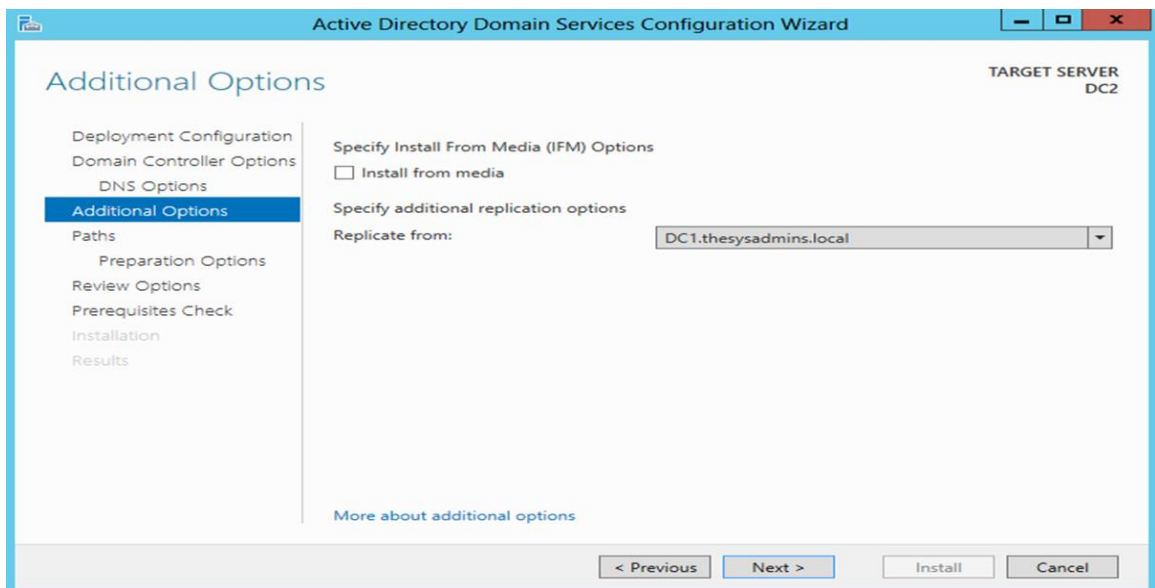


The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window, specifically the 'Domain Controller Options' step. The title bar reads 'Active Directory Domain Services Configuration Wizard'. The main heading is 'Domain Controller Options'. On the right, it says 'TARGET SERVER DC2'. The left sidebar contains a list of steps: 'Deployment Configuration', 'Domain Controller Options' (selected), 'DNS Options', 'Additional Options', 'Paths', 'Review Options', 'Prerequisites Check', 'Installation', and 'Results'. The main area has the heading 'Specify domain controller capabilities and site information' with three checkboxes: 'Domain Name System (DNS) server' (checked), 'Global Catalog (GC)' (checked), and 'Read only domain controller (RODC)' (unchecked). Below this is a 'Site name:' label and a dropdown menu showing 'Default-First-Site-Name'. The next section is 'Type the Directory Services Restore Mode (DSRM) password' with 'Password:' and 'Confirm password:' labels, each followed by a masked password input field. At the bottom, there are buttons for '< Previous', 'Next >', 'Install', and 'Cancel'. A link 'More about domain controller options' is also present.

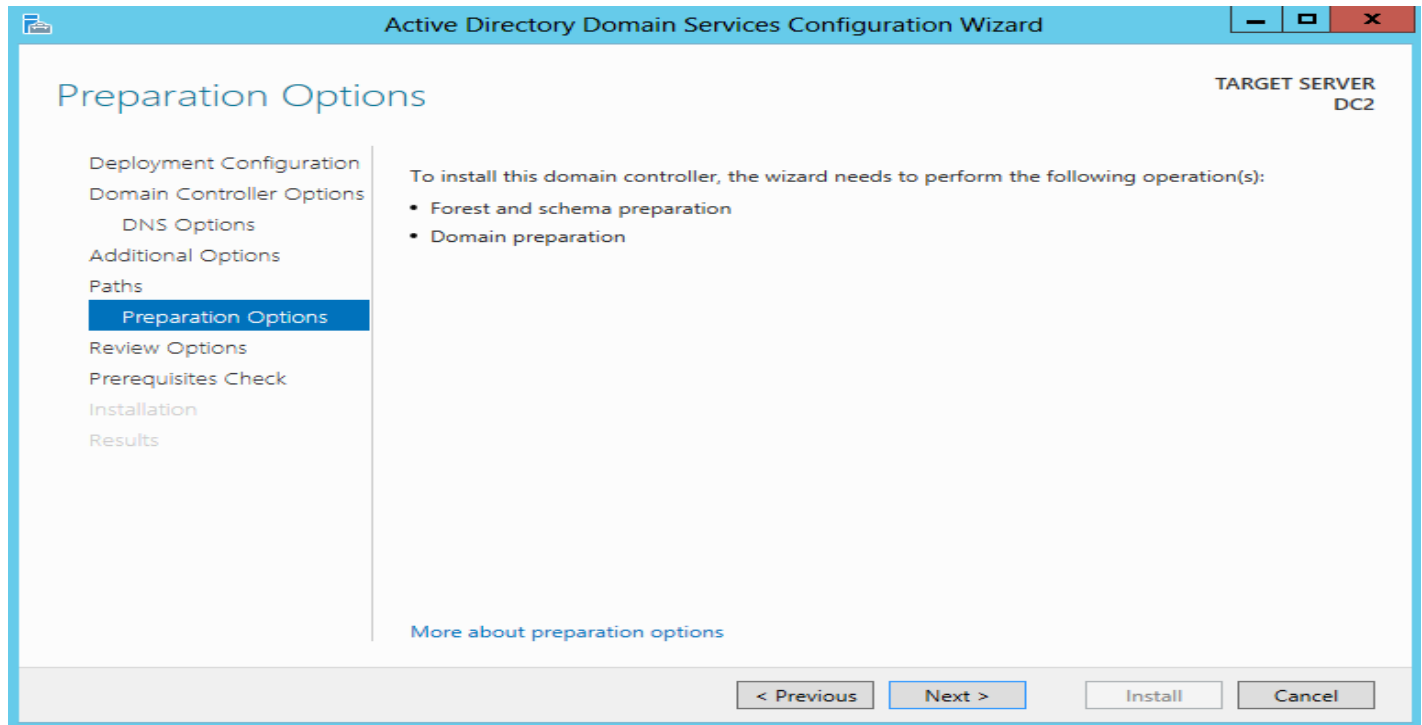
You can typically ignore the warning about DNS delegation, a more detailed explanation can be found here



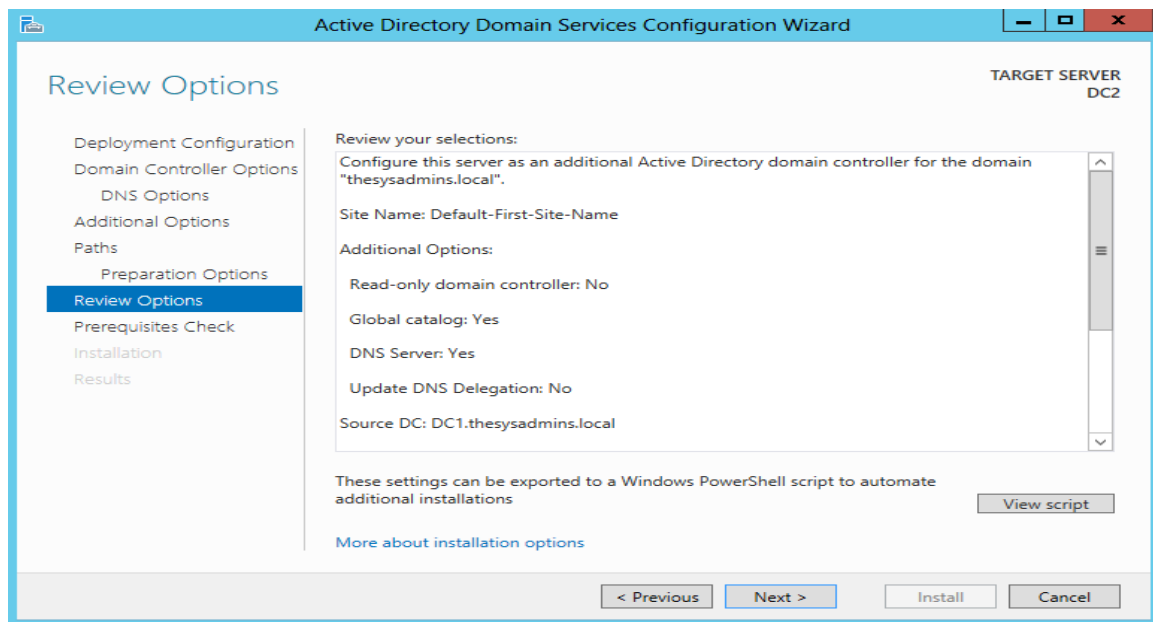
You can install from Media, which is useful if you are promoting a DC in a branch office with a poor connection- it will significantly reduce the initial Active Directory replication. You can specify a particular DC for the initial replication.



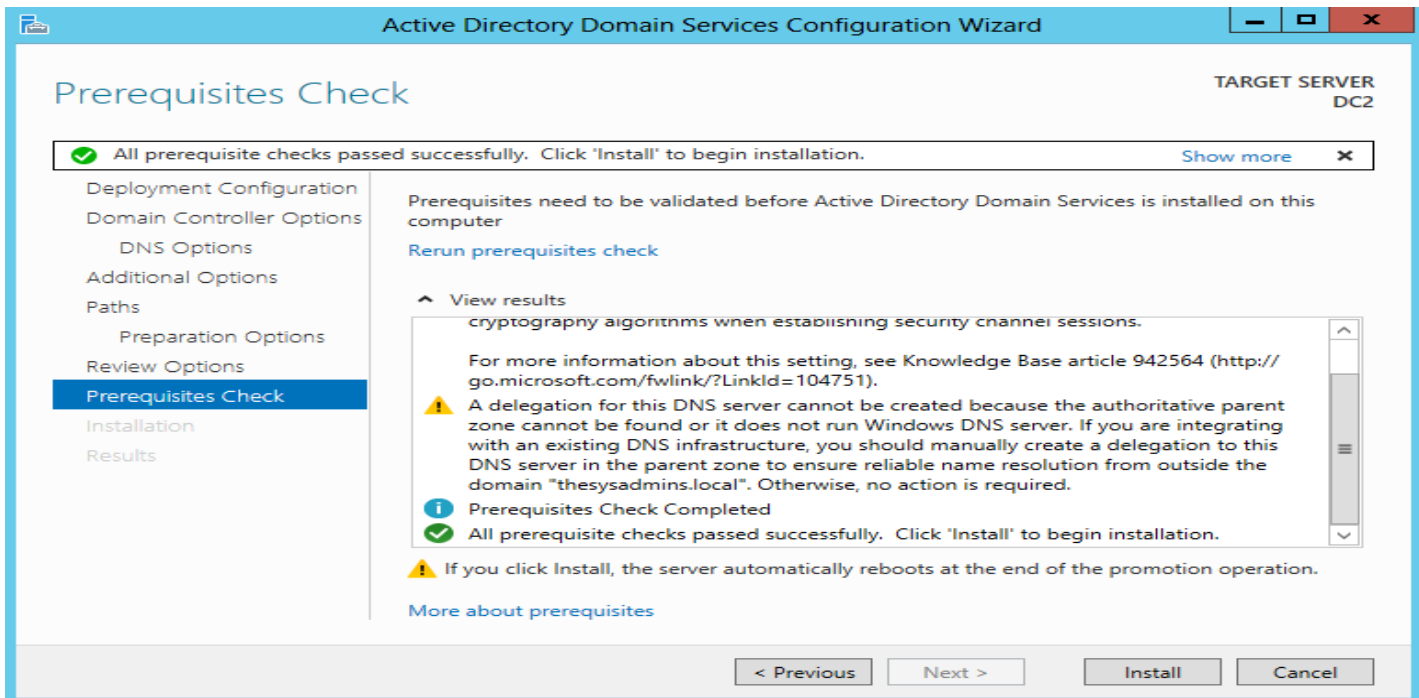
This screen tells us it will prepare the Forest, Schema and domain for us (Server 2012 uses Schema Version 56).



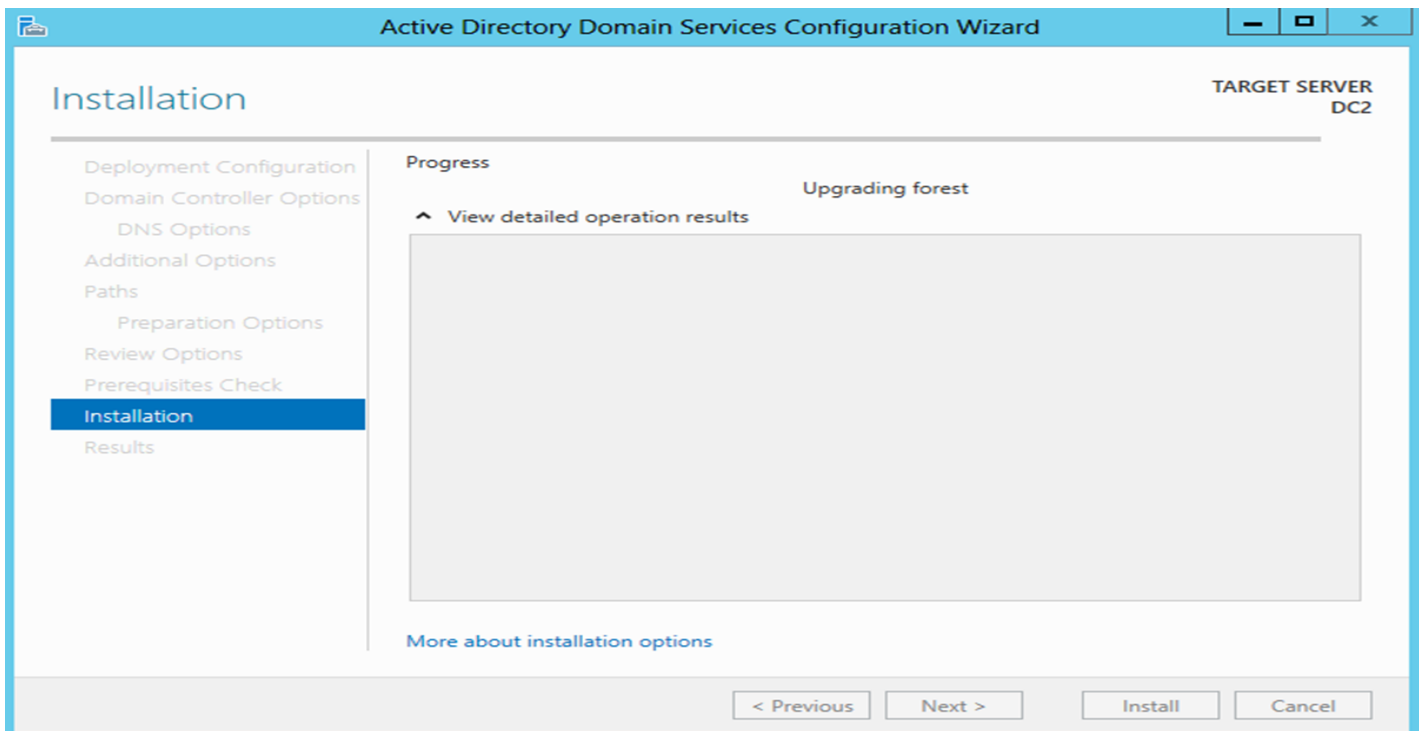
Review screen and option to view the Powershell script.



Click Install.



The install will tick over and when it has finished the server will be restarted.



25.3-Additional domain control in windows server 2016

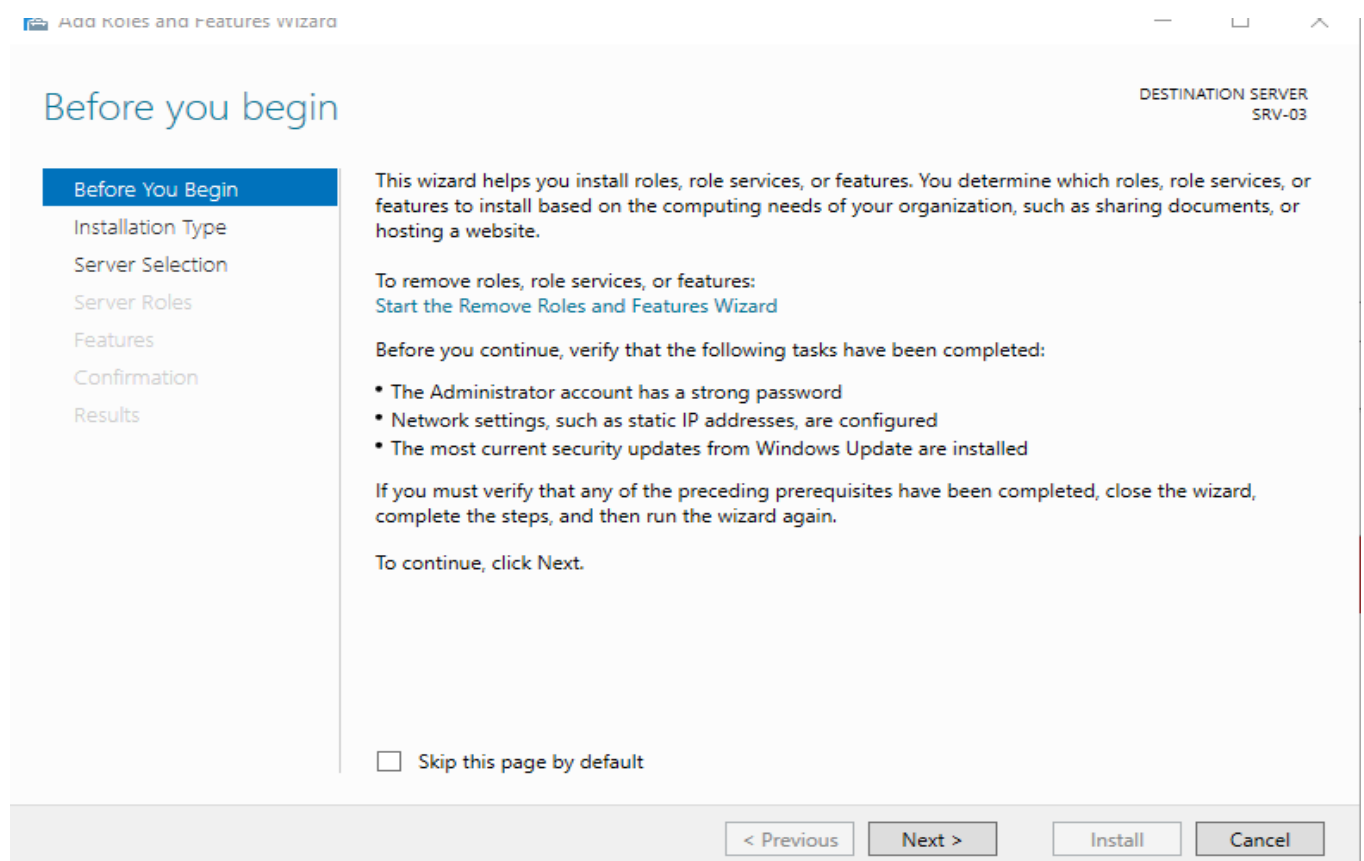
Prerequisites

- Static IP is configured
- Administrator account has strong password
- Firewall is turned off
- DNS server settings in TCP/IPv4 are correct and they are pointing to a domain controller

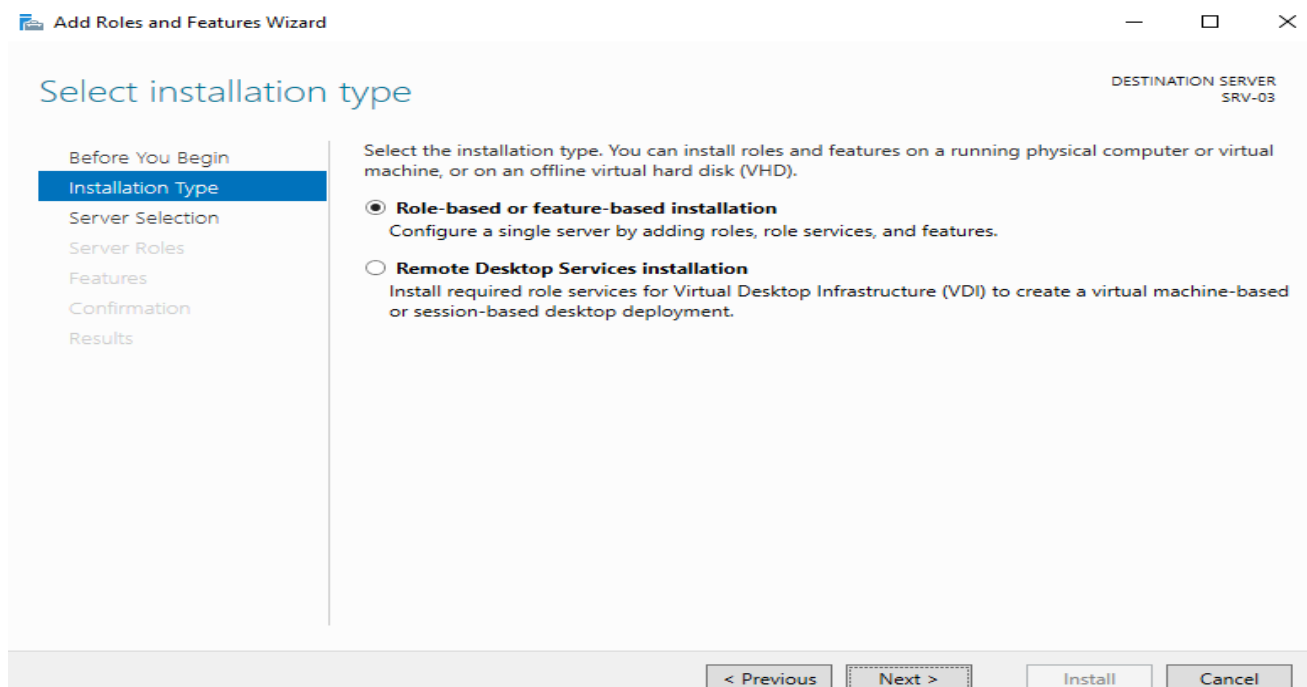
Add a New Domain in Existing Forest in Windows Server 2016

Open server manager dashboard and click Add roles and features.

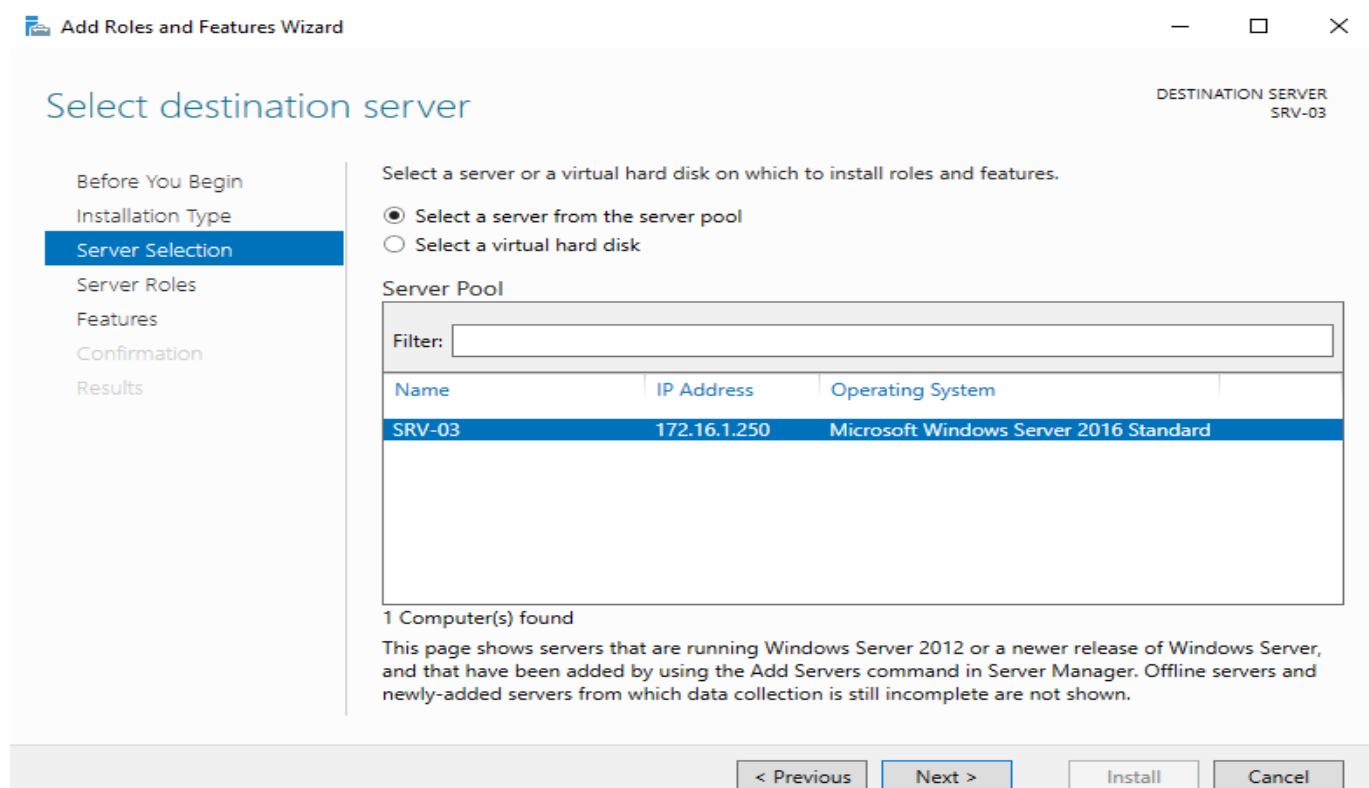
Read the prerequisites and click Next.



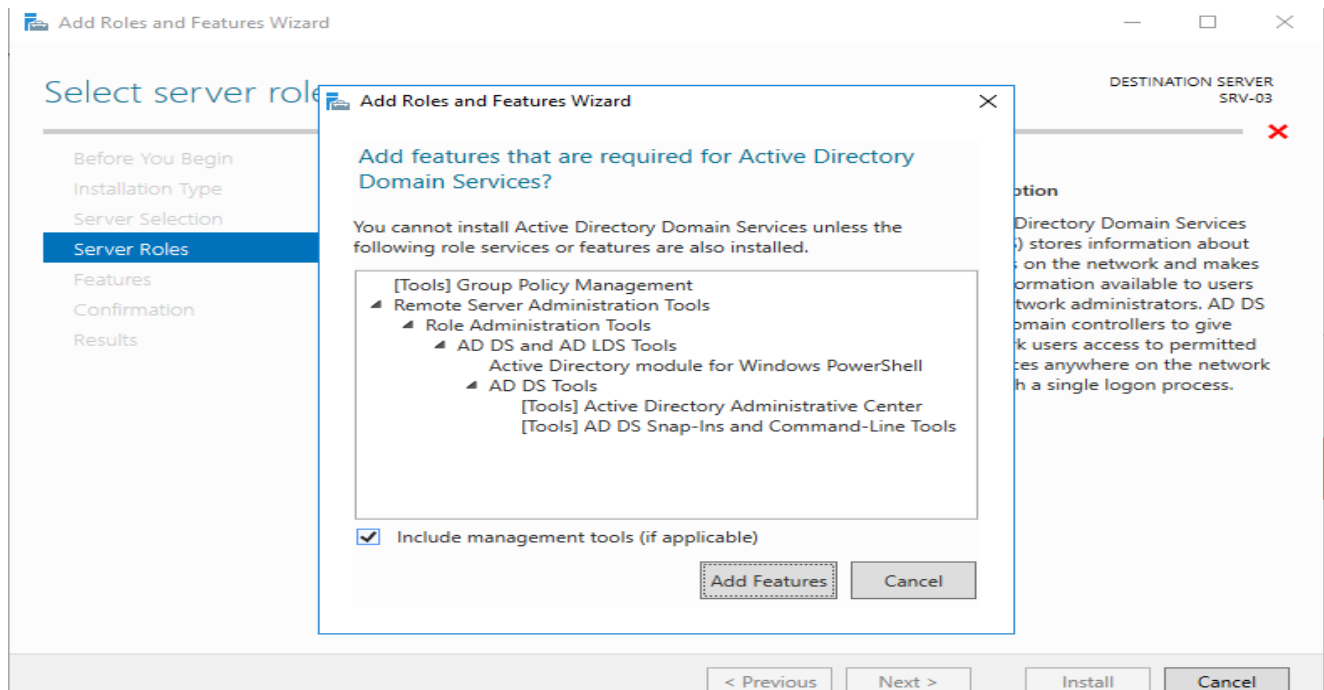
Choose Role-based or feature-based installation and click *Next*.



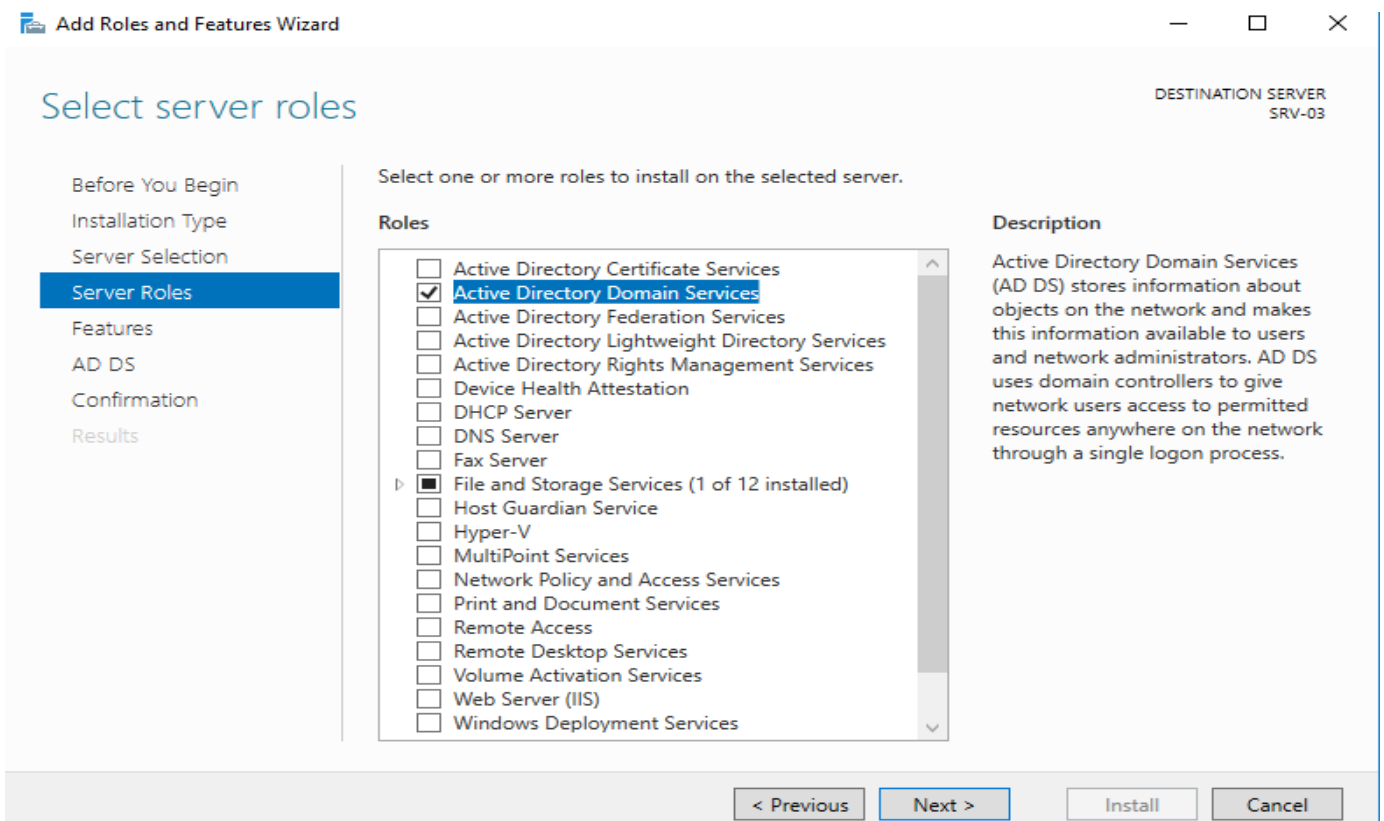
Choose the destination server on which you want to configure the new domain and click *Next*.



Choose Active Directory Domain Services from server roles. As soon as you check the server role, a new window pop up click Add Features.



Click Next.



Click Next.

Select features

DESTINATION SERVER
SRV-03

Before You Begin

Installation Type

Server Selection

Server Roles

Features

AD DS

Confirmation

Results

Select one or more features to install on the selected server.

Features

- ☒ .NET Framework 3.5 Features (1 of 3 installed)
- ☒ .NET Framework 4.6 Features (2 of 7 installed)
- ☐ Background Intelligent Transfer Service (BITS)
- ☐ BitLocker Drive Encryption
- ☐ BitLocker Network Unlock
- ☐ BranchCache
- ☐ Client for NFS
- ☐ Containers
- ☐ Data Center Bridging
- ☐ Direct Play
- ☐ Enhanced Storage
- ☐ Failover Clustering
- ☒ Group Policy Management
- ☐ I/O Quality of Service
- ☐ IIS Hostable Web Core
- ☐ Internet Printing Client
- ☐ IP Address Management (IPAM) Server
- ☐ iSNS Server service
- ☐ LPR Port Monitor

Description

.NET Framework 3.5 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer appealing user interfaces, protect your customers' personal identity information, enable seamless and secure communication, and provide the ability to model a range of business processes.

< Previous

Next >

Install

Cancel

Active Directory Domain Services

DESTINATION SERVER
SRV-03

Before You Begin

Installation Type

Server Selection

Server Roles

Features

AD DS

Confirmation

Results

Active Directory Domain Services (AD DS) stores information about users, computers, and other devices on the network. AD DS helps administrators securely manage this information and facilitates resource sharing and collaboration between users.

Things to note:

- To help ensure that users can still log on to the network in the case of a server outage, install a minimum of two domain controllers for a domain.
- AD DS requires a DNS server to be installed on the network. If you do not have a DNS server installed, you will be prompted to install the DNS Server role on this machine.



Azure Active Directory, a separate online service, can provide simplified identity and access management, security reporting, single sign-on to cloud and on-premises web apps.

[Learn more about Azure Active Directory](#)

[Configure Office 365 with Azure Active Directory Connect](#)

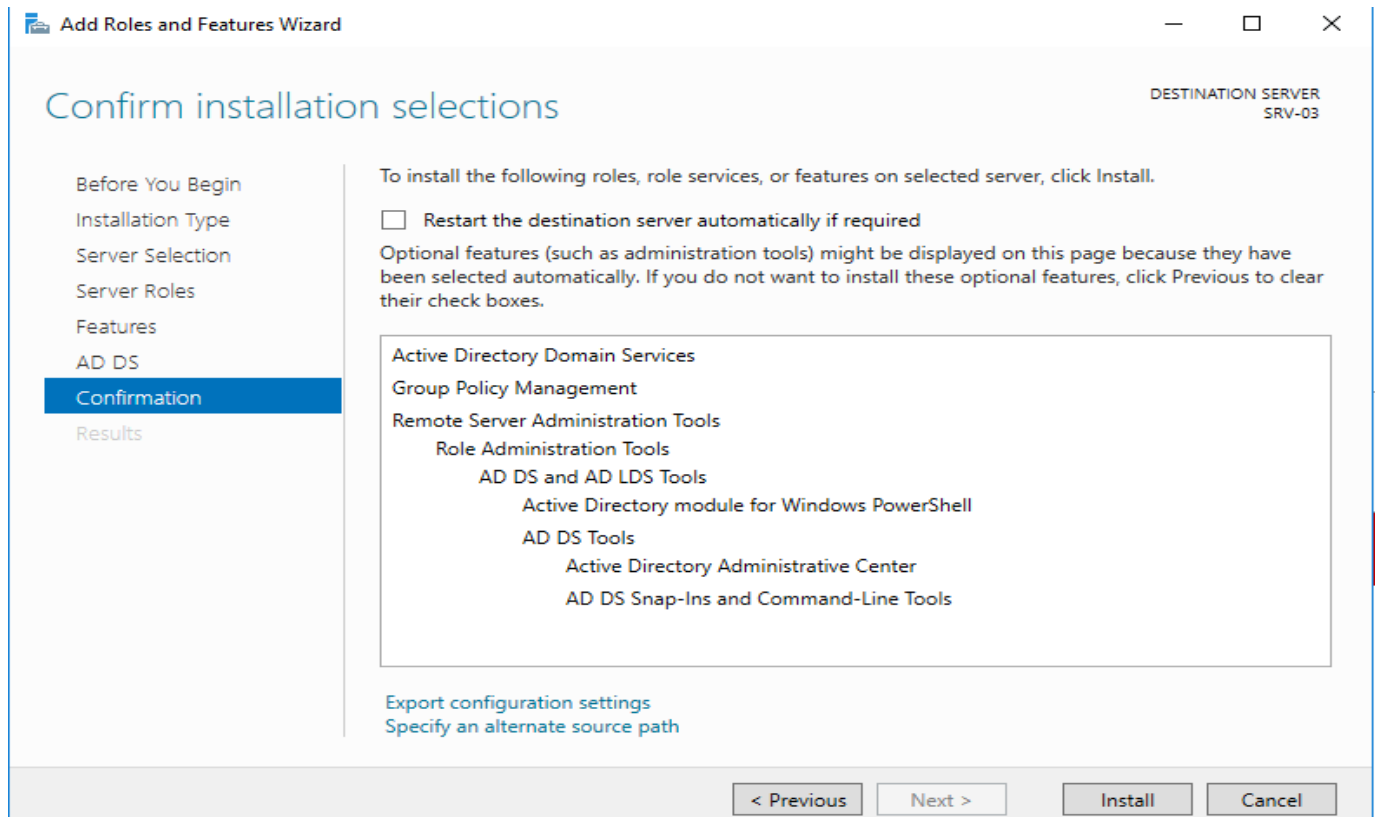
< Previous

Next >

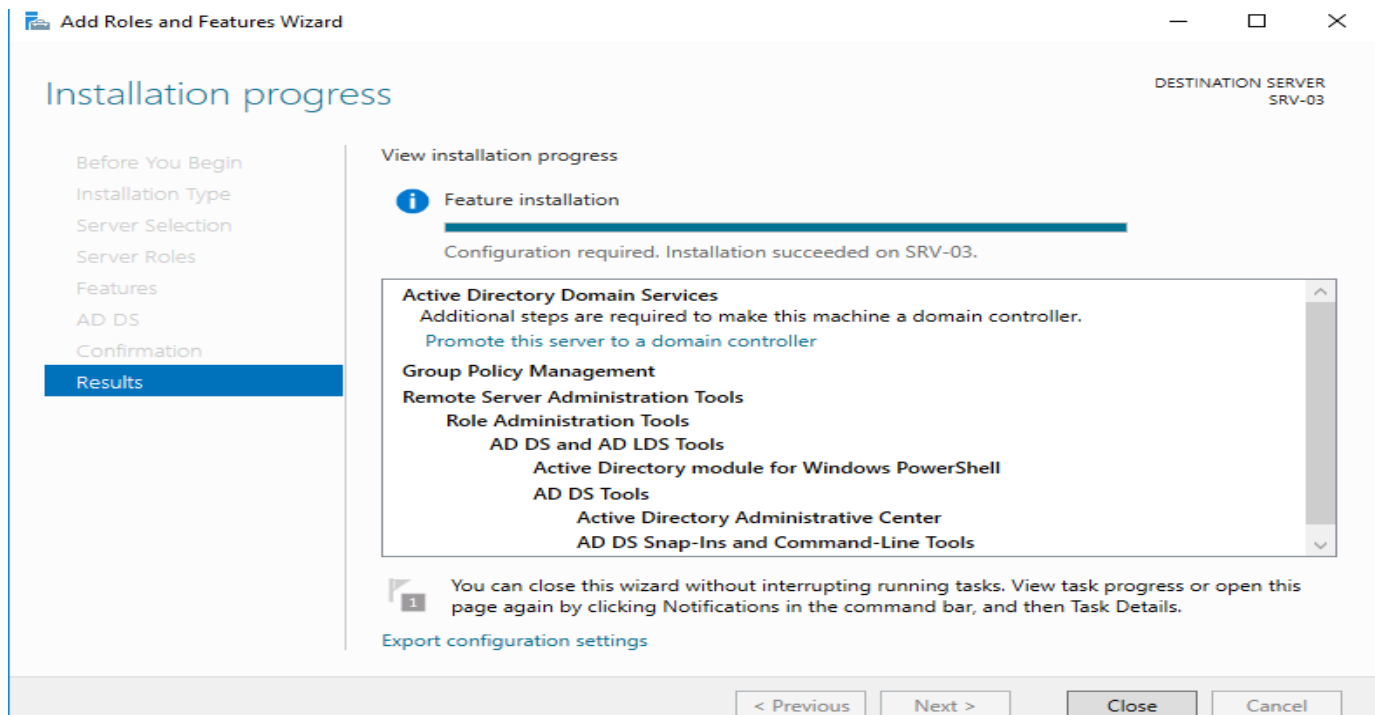
Install

Cancel

Click Install and wait for an installation to finish. This may take several minutes to complete.



Click Promote this server to a domain controller.



Choose to Add a new domain to an existing forest, and tree domain from domain type. Provide forest name, new domain name, and credentials of an account which is part of enterprise admin group. Click Next when you are done.

The screenshot shows the 'Active Directory Domain Services Configuration Wizard' window. The title bar includes the application icon and the text 'Active Directory Domain Services Configuration Wizard'. The window has standard Windows window controls (minimize, maximize, close) in the top right corner. The main content area is titled 'Deployment Configuration' in a large blue font. In the top right corner of the main area, it says 'TARGET SERVER SRV-03'. On the left side, there is a vertical navigation pane with several options: 'Deployment Configuration' (highlighted in blue), 'Domain Controller Options', 'Additional Options', 'Paths', 'Review Options', 'Prerequisites Check', 'Installation', and 'Results'. The main content area is divided into sections. The first section is 'Select the deployment operation' with three radio button options: 'Add a domain controller to an existing domain', 'Add a new domain to an existing forest' (which is selected), and 'Add a new forest'. The second section is 'Specify the domain information for this operation' with three input fields: 'Select domain type:' with a dropdown menu showing 'Tree Domain', 'Forest name:' with a text box containing 'yourdomain.com', and 'New domain name:' with a text box containing 'mydomain.com'. The third section is 'Supply the credentials to perform this operation' with a text box containing 'yourdomain\administrator' and a 'Change...' button to its right. At the bottom of the main content area, there is a blue link that says 'More about deployment configurations'. At the very bottom of the window, there is a grey bar containing four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

Active Directory Domain Services Configuration Wizard

Deployment Configuration

TARGET SERVER
SRV-03

Deployment Configuration

Domain Controller Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

Select the deployment operation

☐ Add a domain controller to an existing domain

☒ Add a new domain to an existing forest

☐ Add a new forest

Specify the domain information for this operation

Select domain type: Tree Domain

Forest name: yourdomain.com

New domain name: mydomain.com

Supply the credentials to perform this operation

yourdomain\administrator

Change...

[More about deployment configurations](#)

< Previous Next > Install Cancel

Provide Directory Services Restore Mode (DSRM) password and click Next. Keep the rest of the options as default while making sure the options for Domain Name System (DNS) Server and Global Catalog (GC) are checked.

Active Directory Domain Services Configuration Wizard

TARGET SERVER
SRV-03

Domain Controller Options

Deployment Configuration

Domain Controller Options

DNS Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

Select functional level of the new domain

Domain functional level: Windows Server 2016

Specify domain controller capabilities and site information

☒ Domain Name System (DNS) server

☒ Global Catalog (GC)

☐ Read only domain controller (RODC)

Site name: Default-First-Site-Name

Type the Directory Services Restore Mode (DSRM) password

Password: ••••••

Confirm password: ••••••

[More about domain controller options](#)

< Previous Next > Install Cancel

Ignore the warning and click Next.

Active Directory Domain Services Configuration Wizard

TARGET SERVER
SRV-03

DNS Options

Deployment Configuration

Domain Controller Options

DNS Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

⚠ A delegation for this DNS server cannot be created because the authoritative parent zone cannot be found... [Show more](#) ✕

Specify DNS delegation options

☐ Create DNS delegation

[More about DNS delegation](#)

< Previous Next > Install Cancel

Click Next.

Active Directory Domain Services Configuration Wizard

TARGET SERVER
SRV-03

Additional Options

Deployment Configuration

Domain Controller Options

DNS Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

Verify the NetBIOS name assigned to the domain and change it if necessary

The NetBIOS domain name:

[More about additional options](#)

< Previous Next > Install Cancel

Click Next.

Active Directory Domain Services Configuration Wizard

TARGET SERVER
SRV-03

Paths

Deployment Configuration

Domain Controller Options

DNS Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

Specify the location of the AD DS database, log files, and SYSVOL

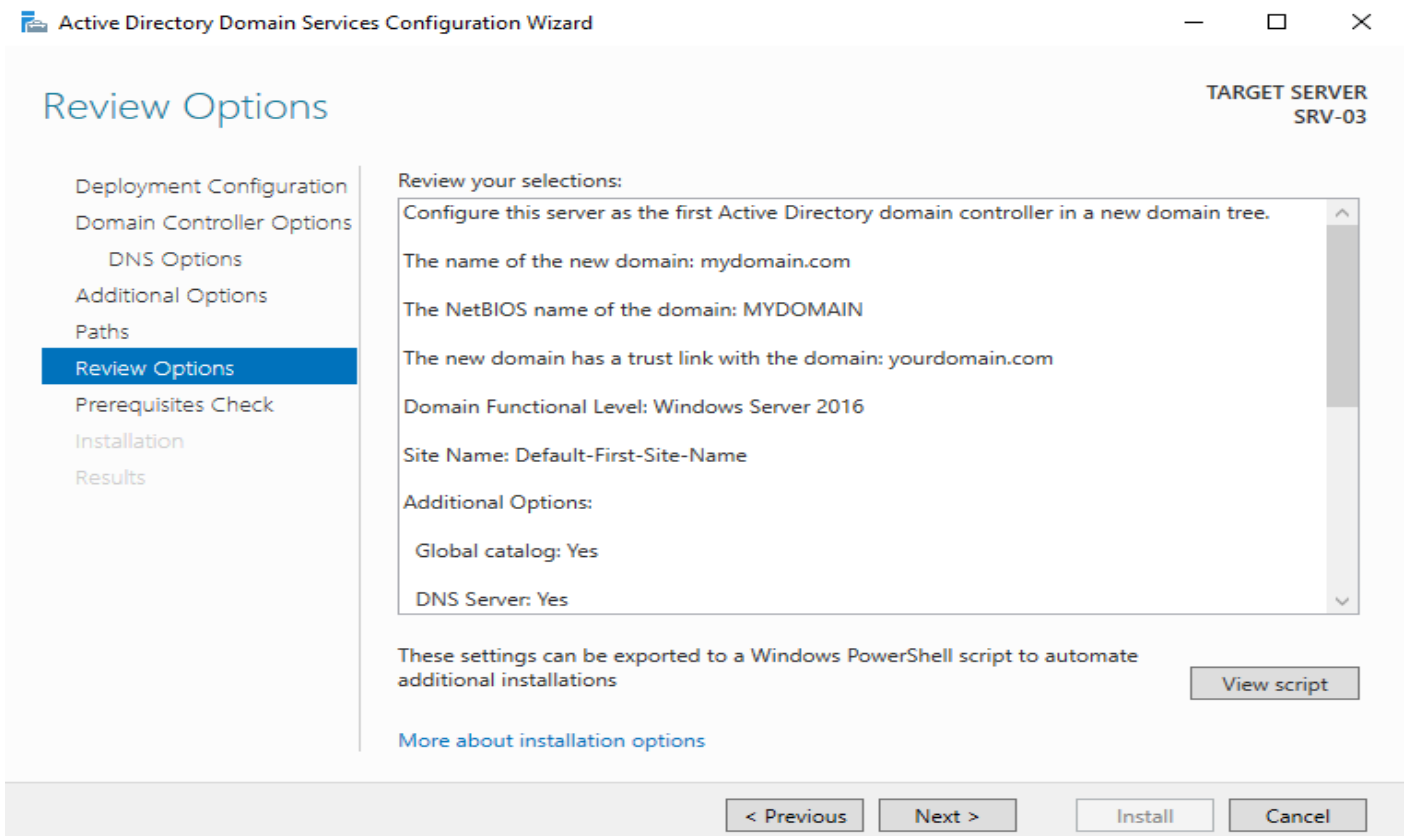
Database folder: ...

Log files folder: ...

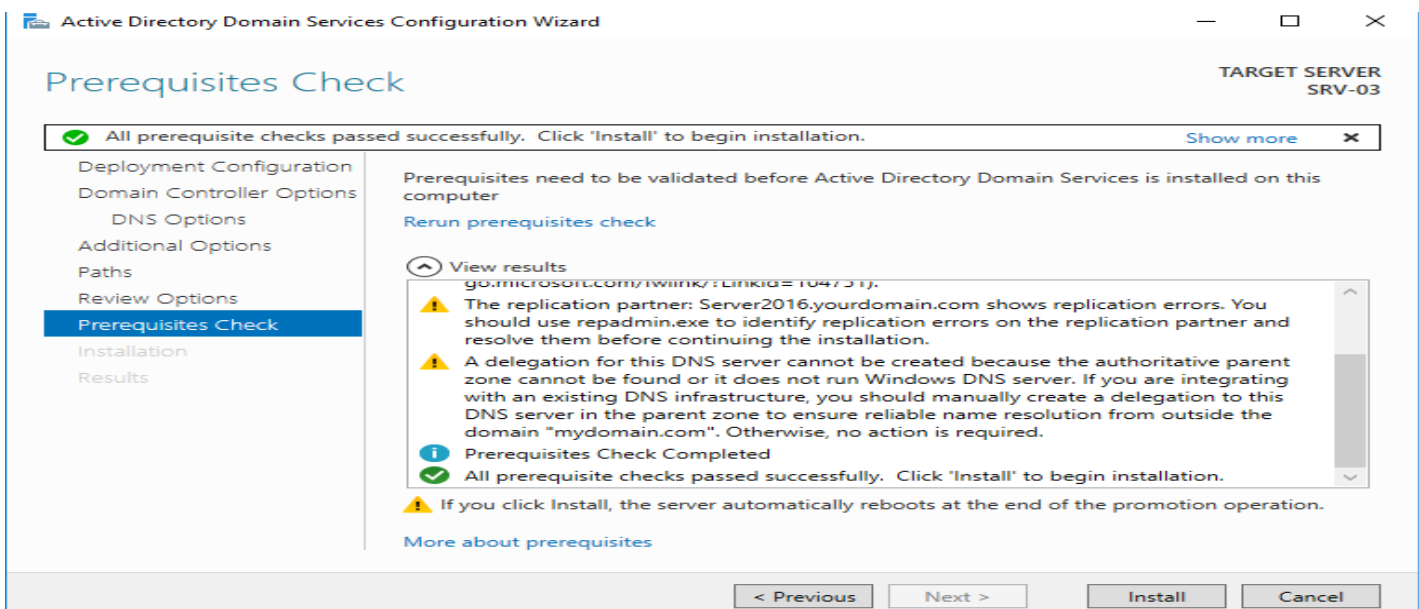
SYSVOL folder: ...

[More about Active Directory paths](#)

< Previous Next > Install Cancel



Click Install and wait for the configuration to finish. This may take several minutes to complete.



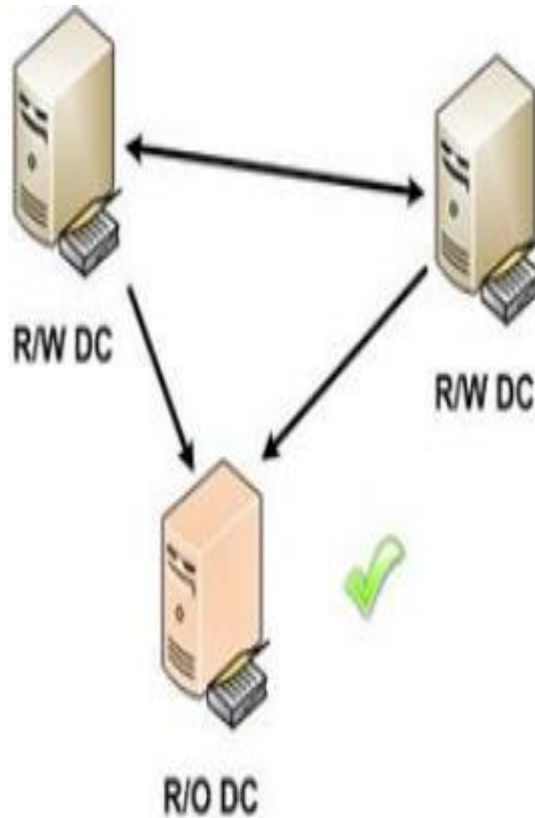
When you are done with configuration, the server will be rebooted automatically. After reboot, you can login with your domain admin account and start managing the new domain.

26-Read only domain controller

وحدة تحكم مجال للقراءة فقط (RODC) هو خادم يستضيف أقسام للقراءة فقط في قاعدة بيانات Active Directory ويستجيب لطلبات مصادقة الأمان.

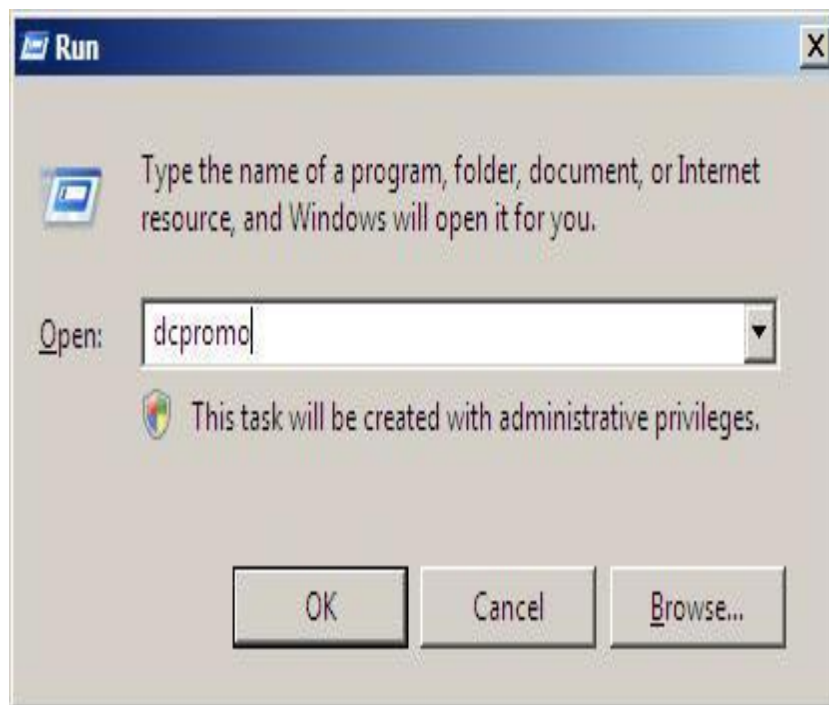
في وضع القراءة فقط ، يمكن لوحدة التحكم بالمجال الاستجابة للطلبات بسرعة أكبر نظرًا لأنه لا داعي للقلق بشأن معالجة التغييرات التي تحتاج إلى نسخها نسخًا متماثلًا إلى وحدات التحكم بالمجال الأخرى.

Why would you ever want to deploy RODCs? This domain controller mode is highly useful if you want to provide Active Directory authentication services in a location that is not adequately secure for a writable copy of your Active Directory database. Also, in read-only mode, the domain controller can respond to requests more quickly since it doesn't have to worry about processing changes that need to be replicated up to other domain controllers. It is also a good option if you have an application that performs best when installed on a domain controller. By running that application on an RODC rather than a regular domain controller, you don't run the risk that the DC will be inadvertently used by the application to make changes to your directory.

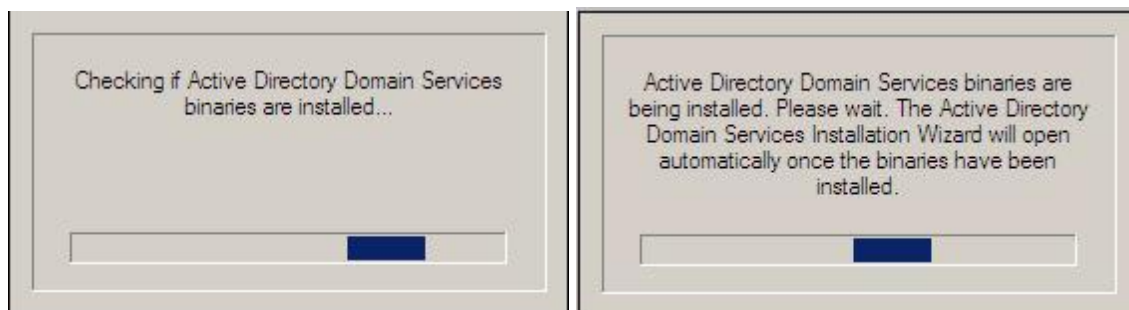


26.1- Read only domain controller in windows server 2008

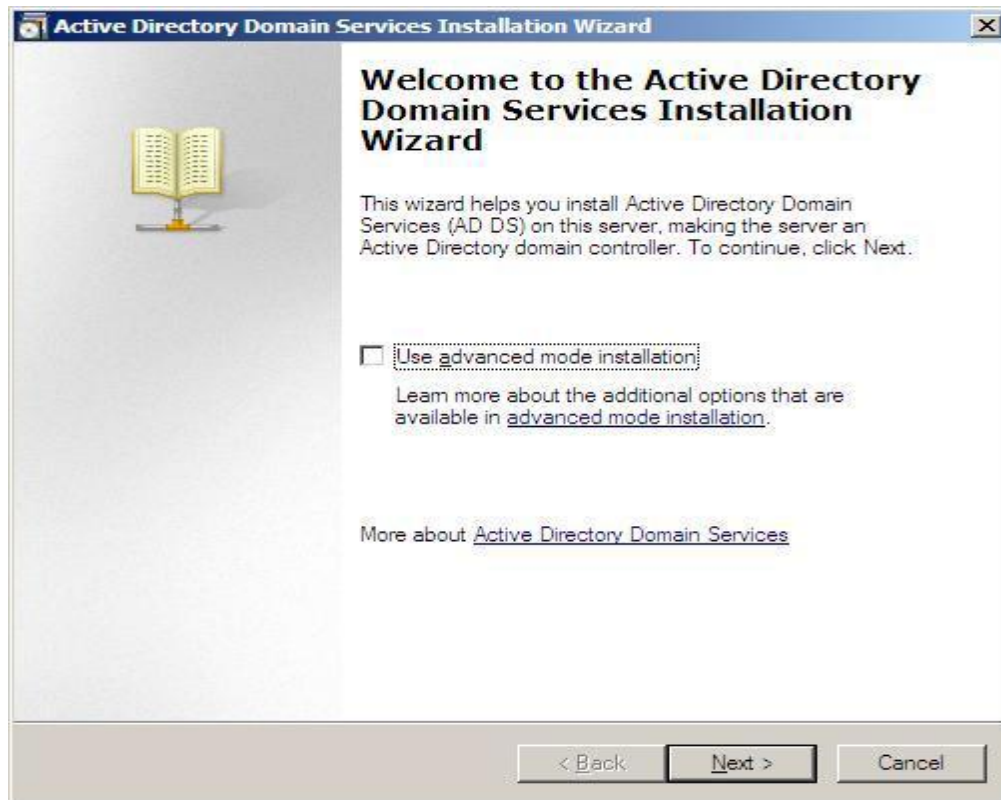
To set up an read only domain Controller, I will use the dcpromo.exe command. To use the command, click on Start > Run > and then write dcpromo > Click OK



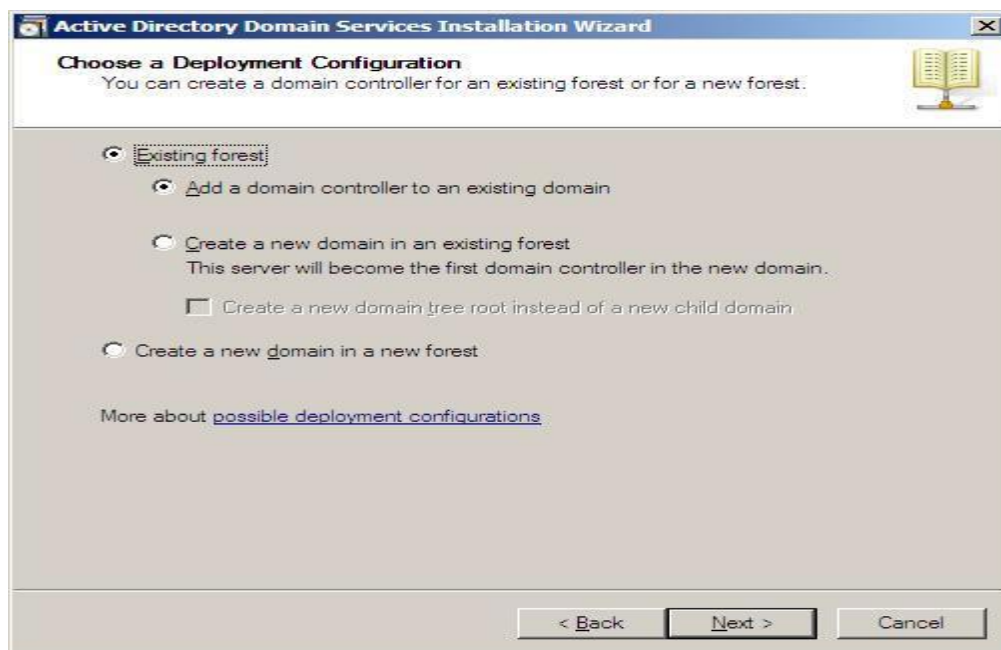
The system will start checking if Active Directory Domain Services (AD DS) binaries are installed, then will start installing them. The binaries could be installed if you had run the dcpromo command previously and then canceled the operation after the binaries were installed.



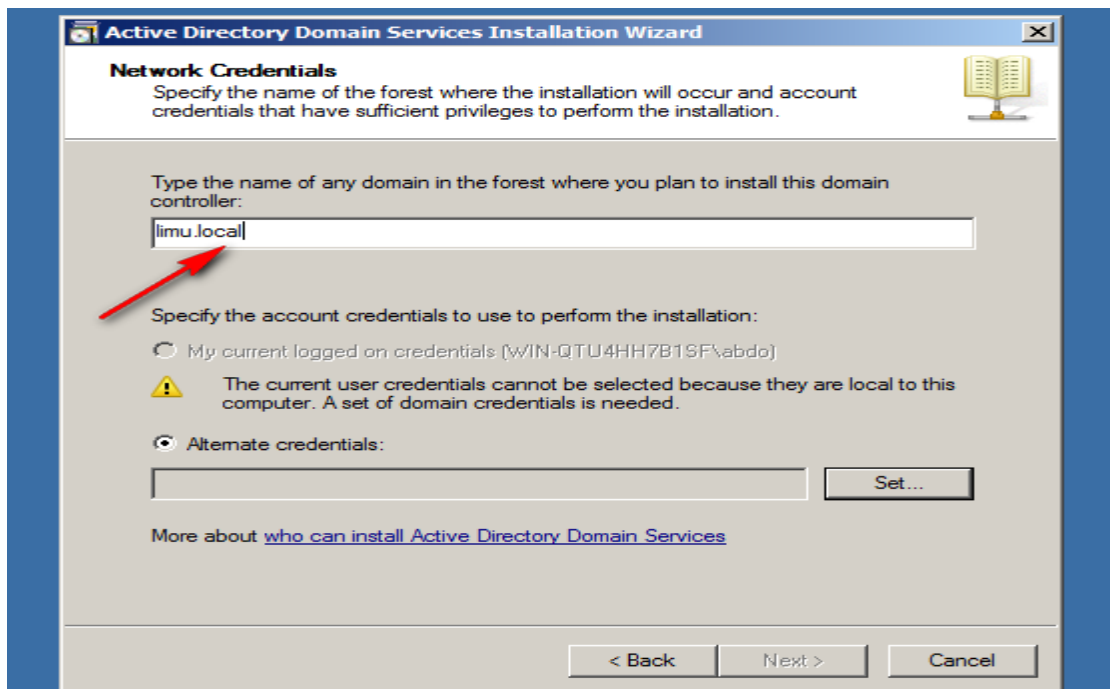
The Active Directory Domain Services Installation Wizard will start, either enable the checkbox beside Use Advanced mode installation and Click Next , or keep it unselected and click on Next



On the Choose a Deployment Configuration page, click Existing forest, click Add a domain controller to an existing domain, and then click Next.



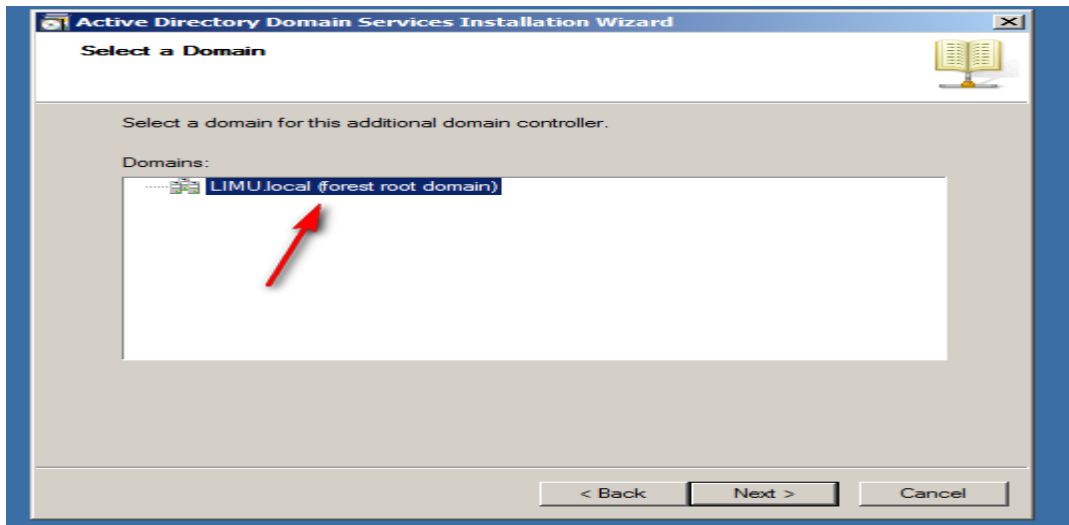
On the Network Credentials page, type your domain name, my domain name is elmajdal.net (was set in the previous article) , so I will type LIMU.local



Enter the credentials



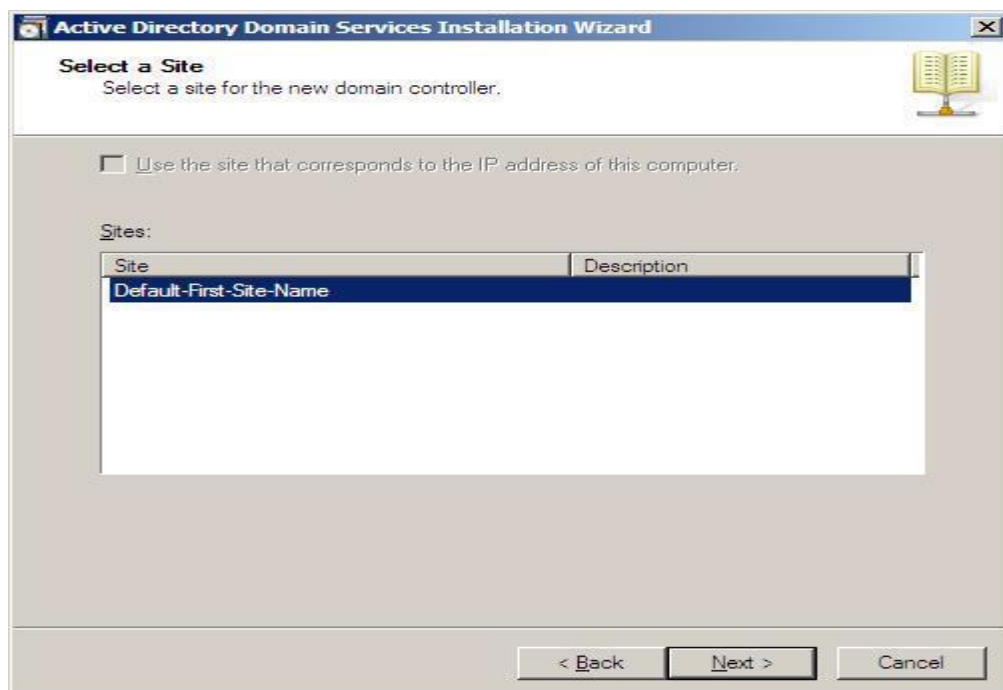
On the Select a Domain page, select the domain of the Additional Domain Controller, and then click Next, as I already have only one domain, then it will be selected by default



Select the site of domain controller

On the Select a Site page, either enable the checkbox beside Use the site that corresponds to the IP address of this computer, this will install the domain controller in the site that corresponds to its IP address, or select a site from the list and then click Next. If you only have one domain controller and one site, then you will have the first option grayed and the site will be selected by default as shown in the following image

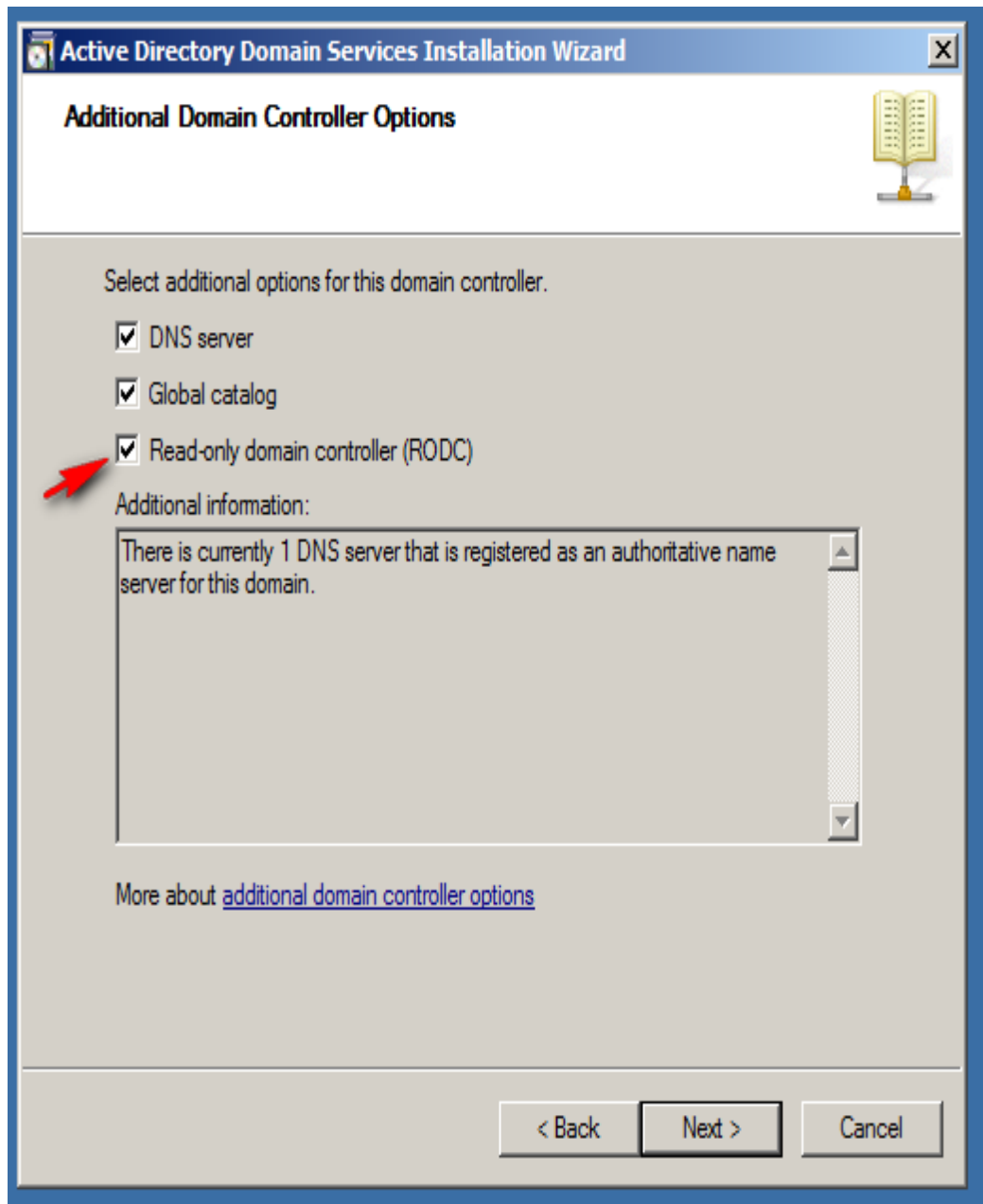
Select the site of domain controller



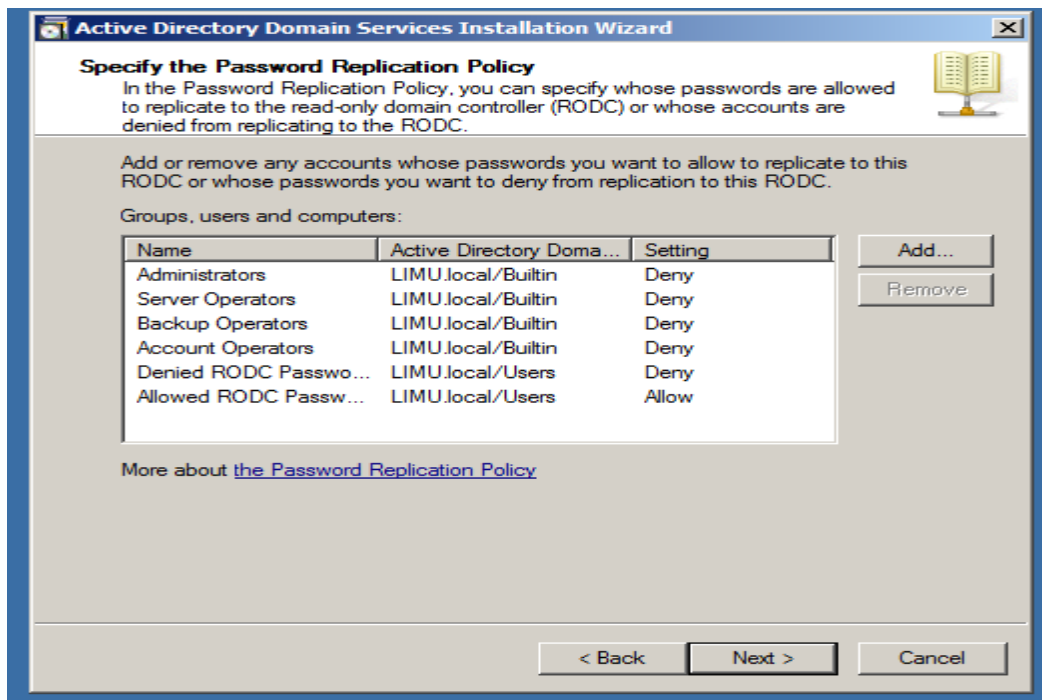
DNS and Global catalog

On the read only domain Controller Options page, By default, the DNS Server and Global Catalog checkboxes are selected. You can also select your additional domain controller to be a Read-only Domain Controller (RODC) by selecting the checkbox beside it.

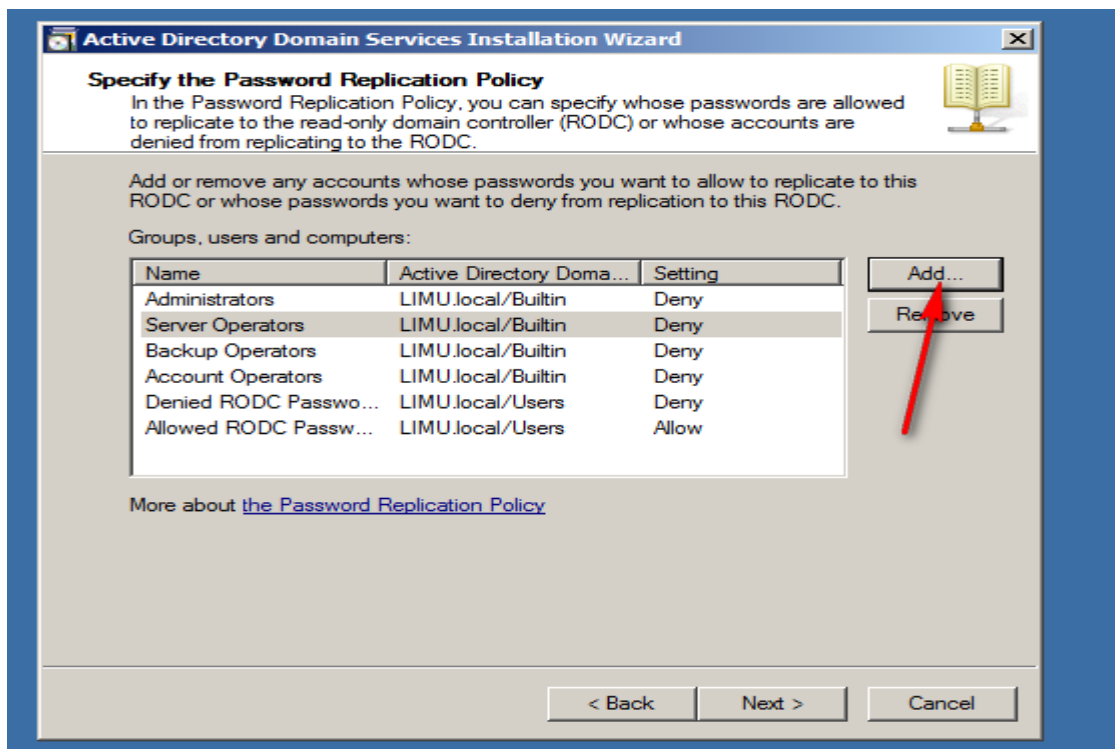
Read only domain controller



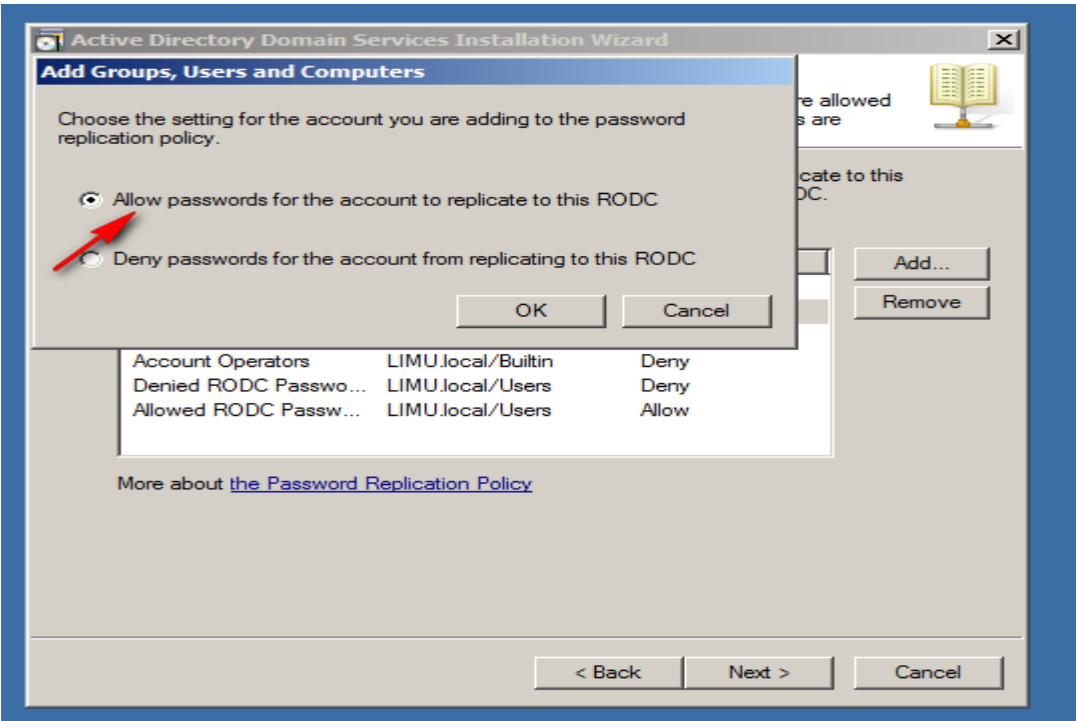
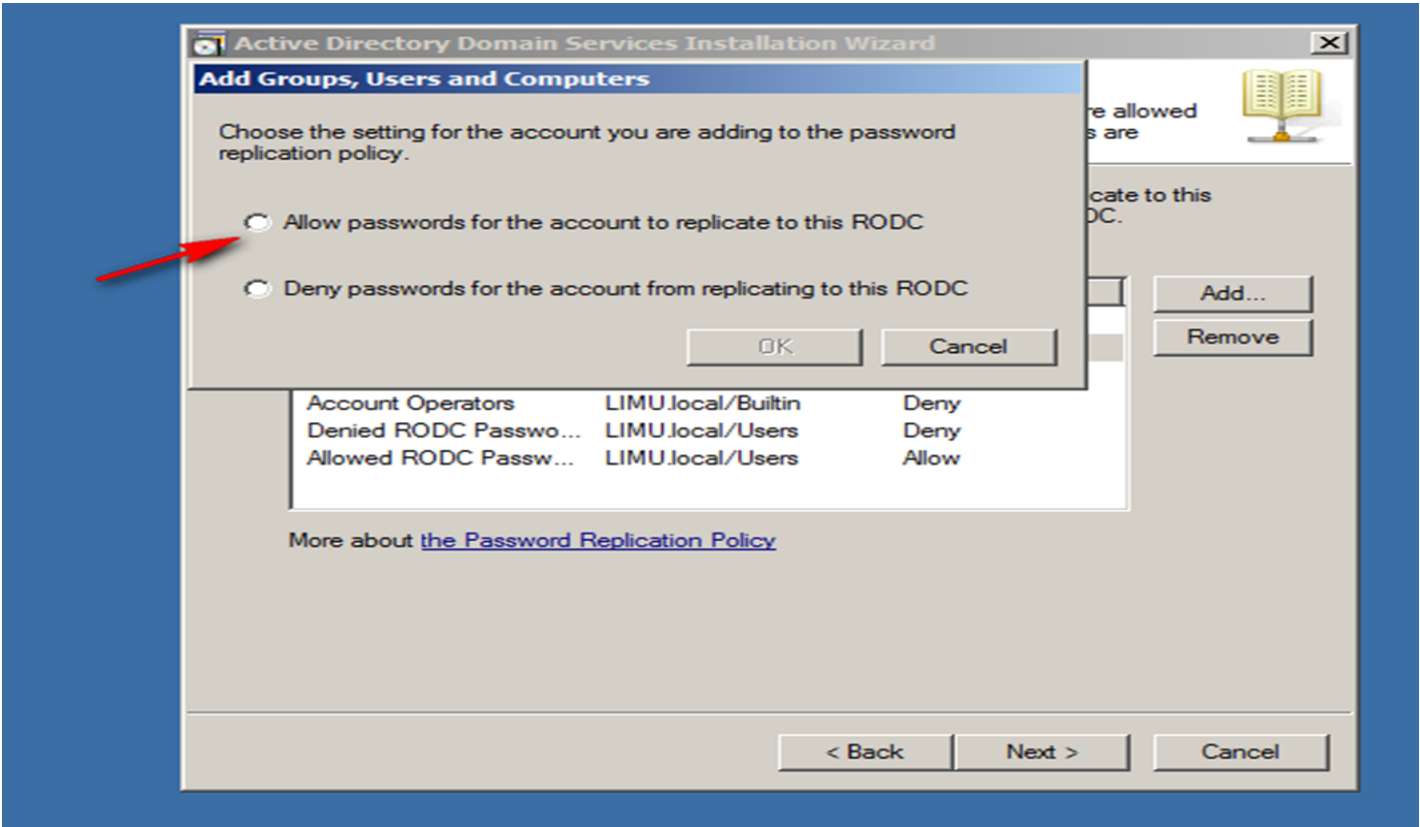
Specify the password replication

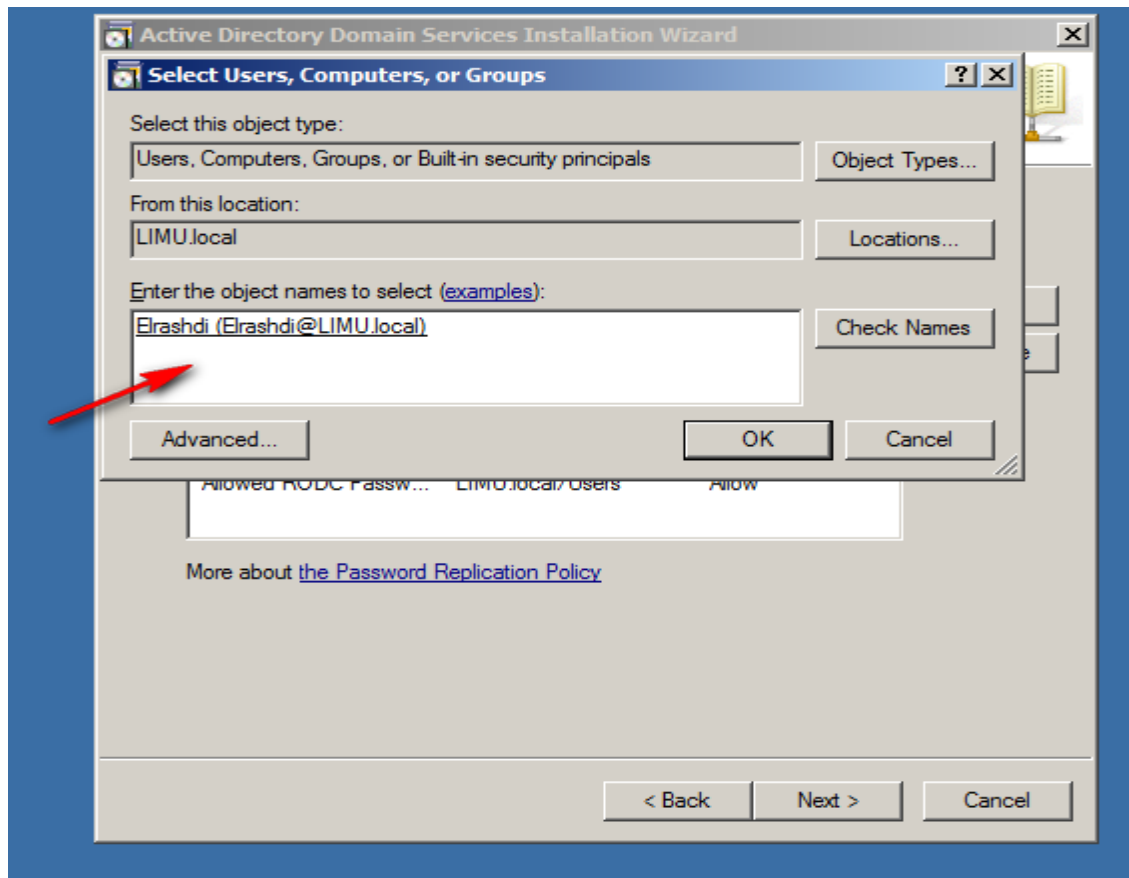
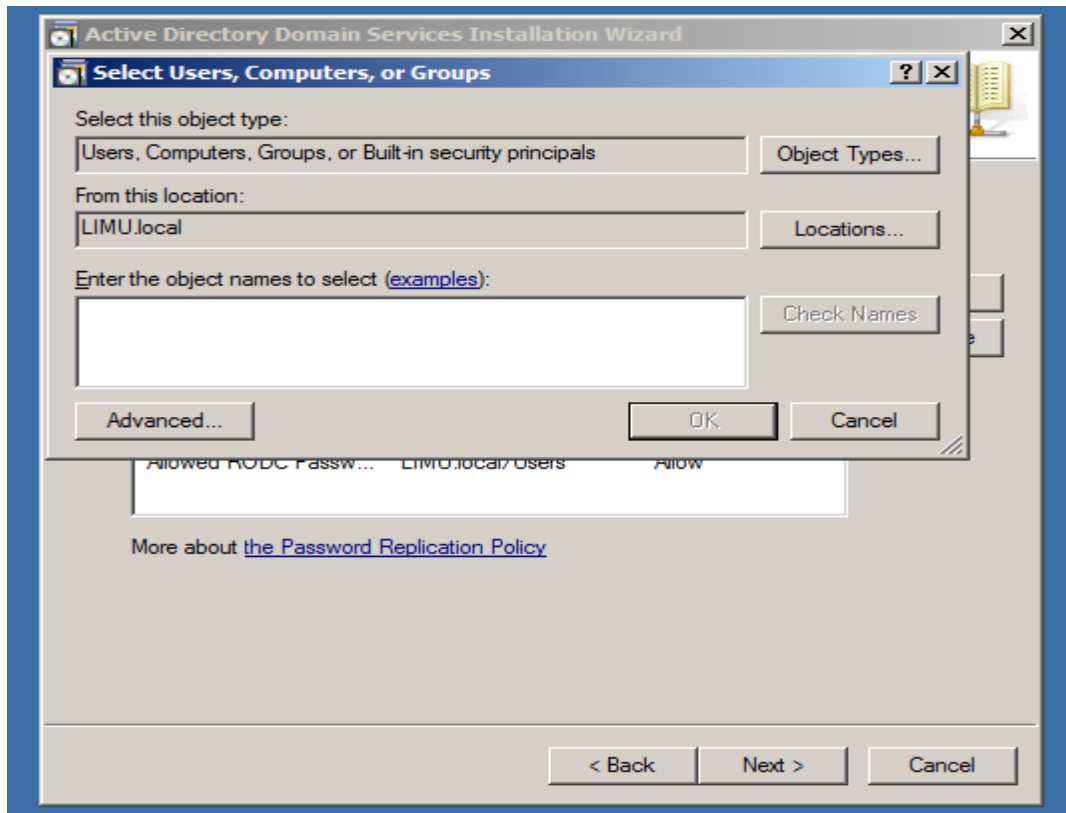


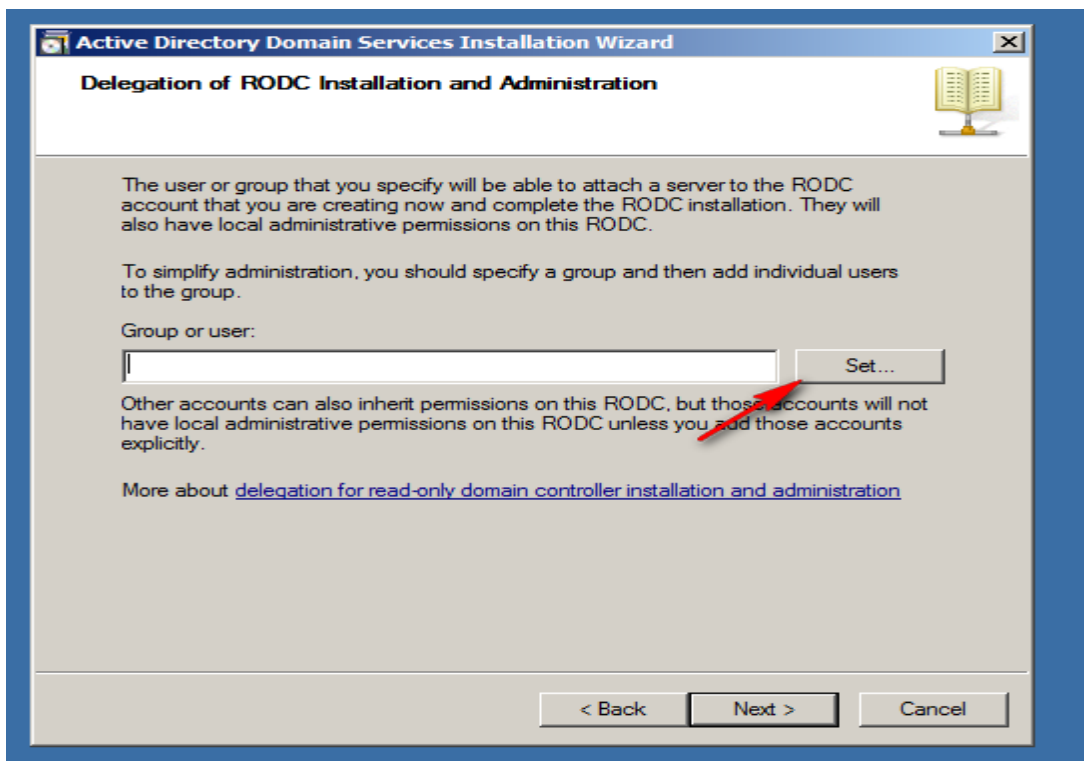
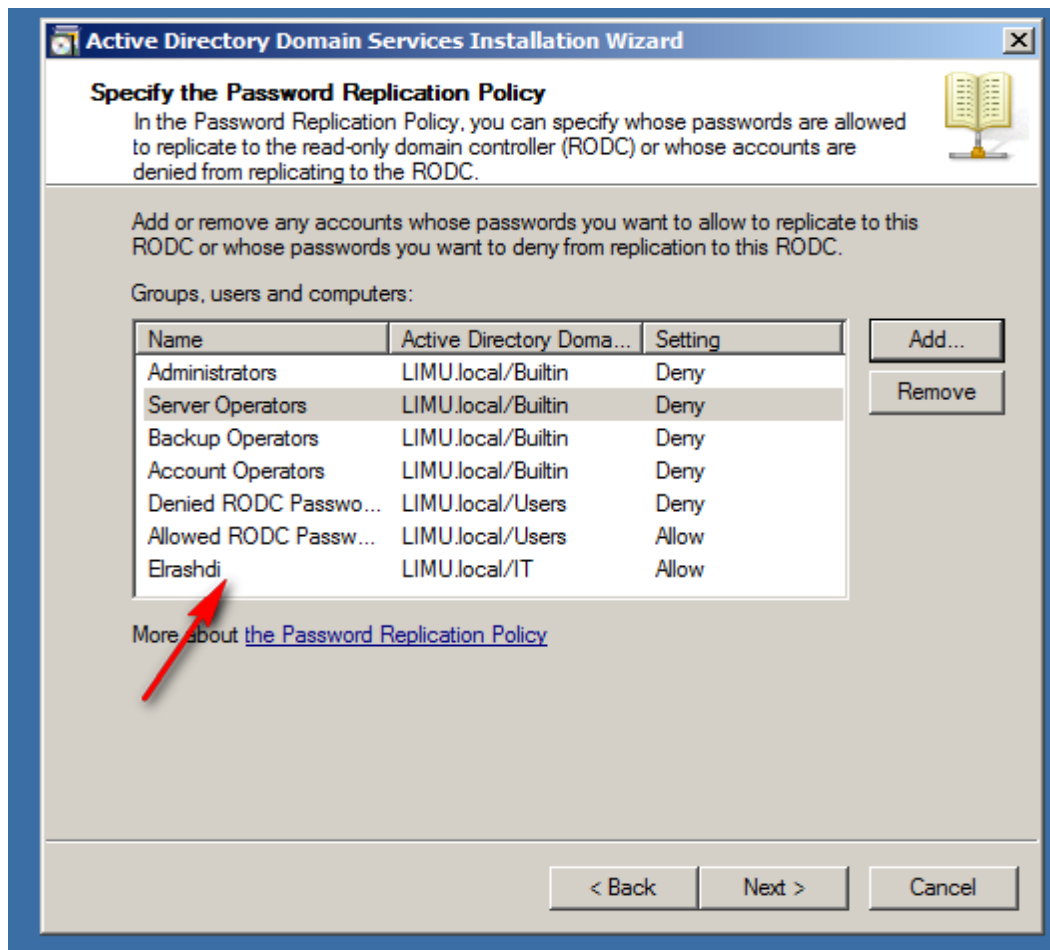
You can add specific user from original domain controller to read information from primal domain controller

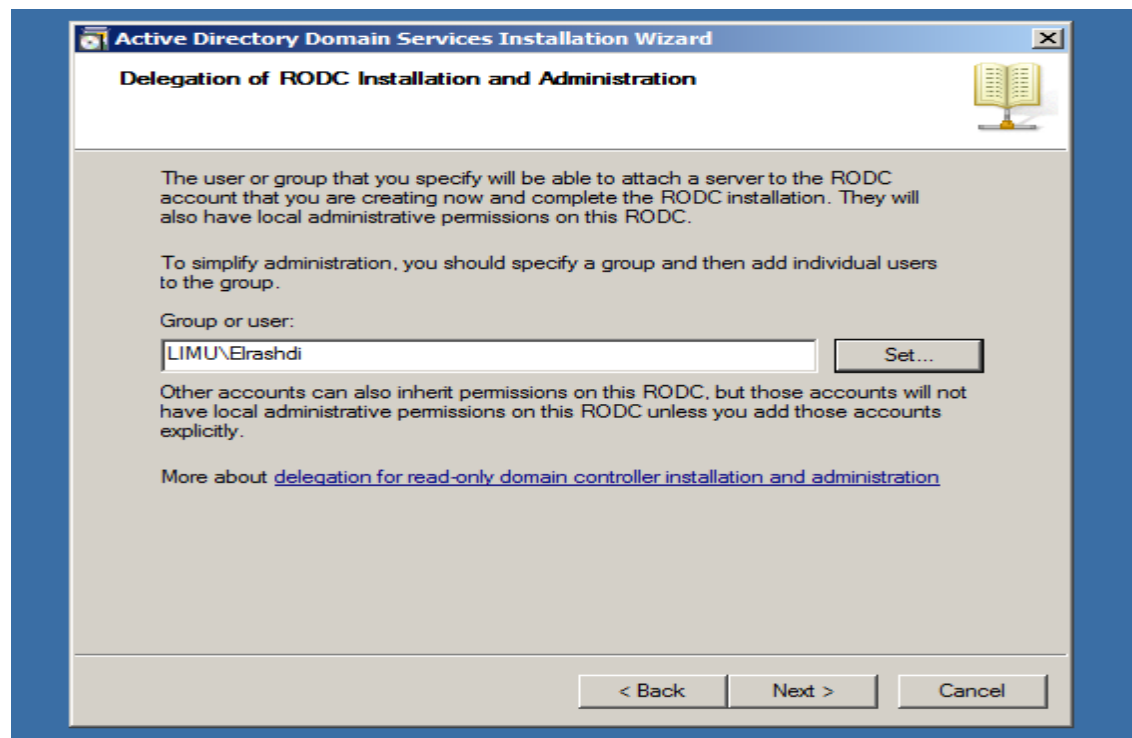
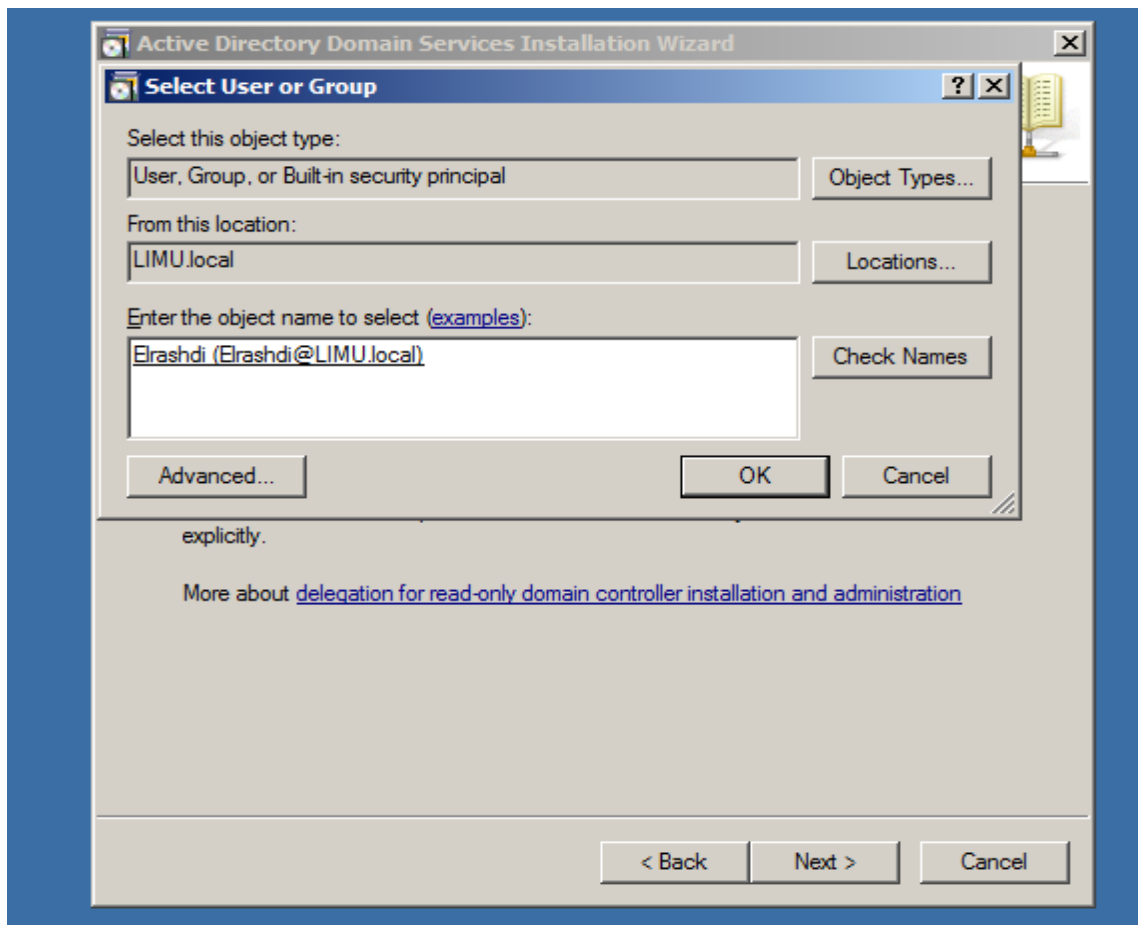


Select Specific user



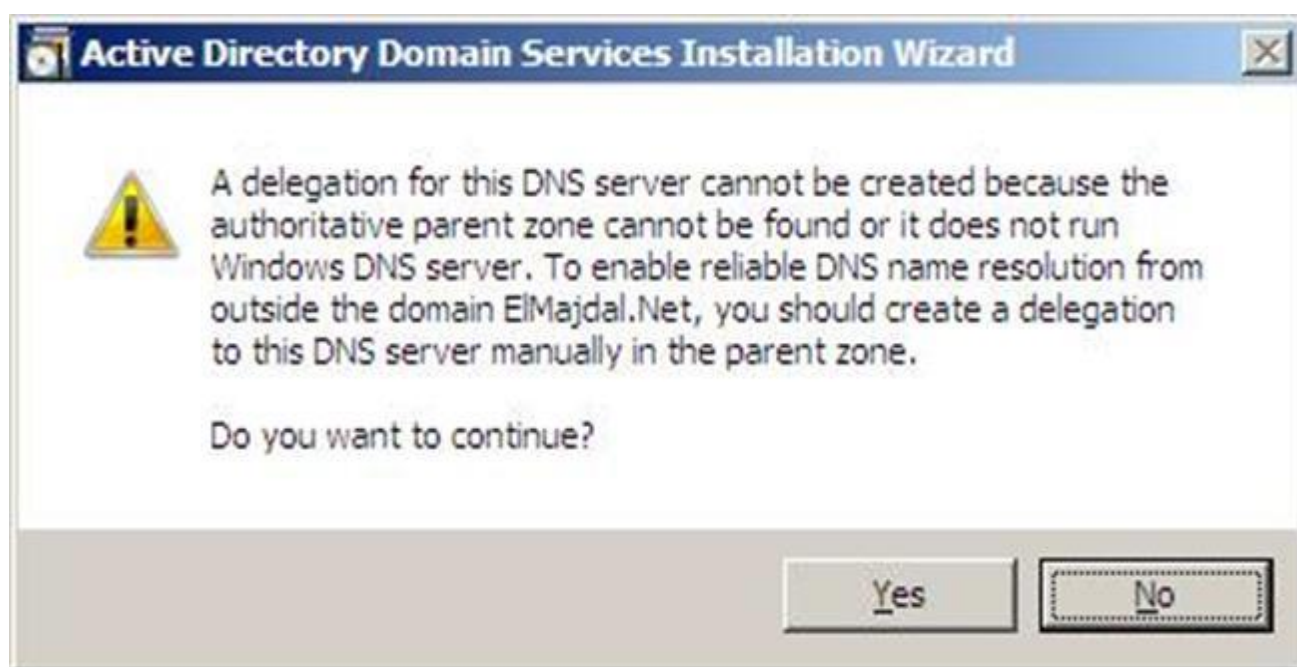






Select DNS

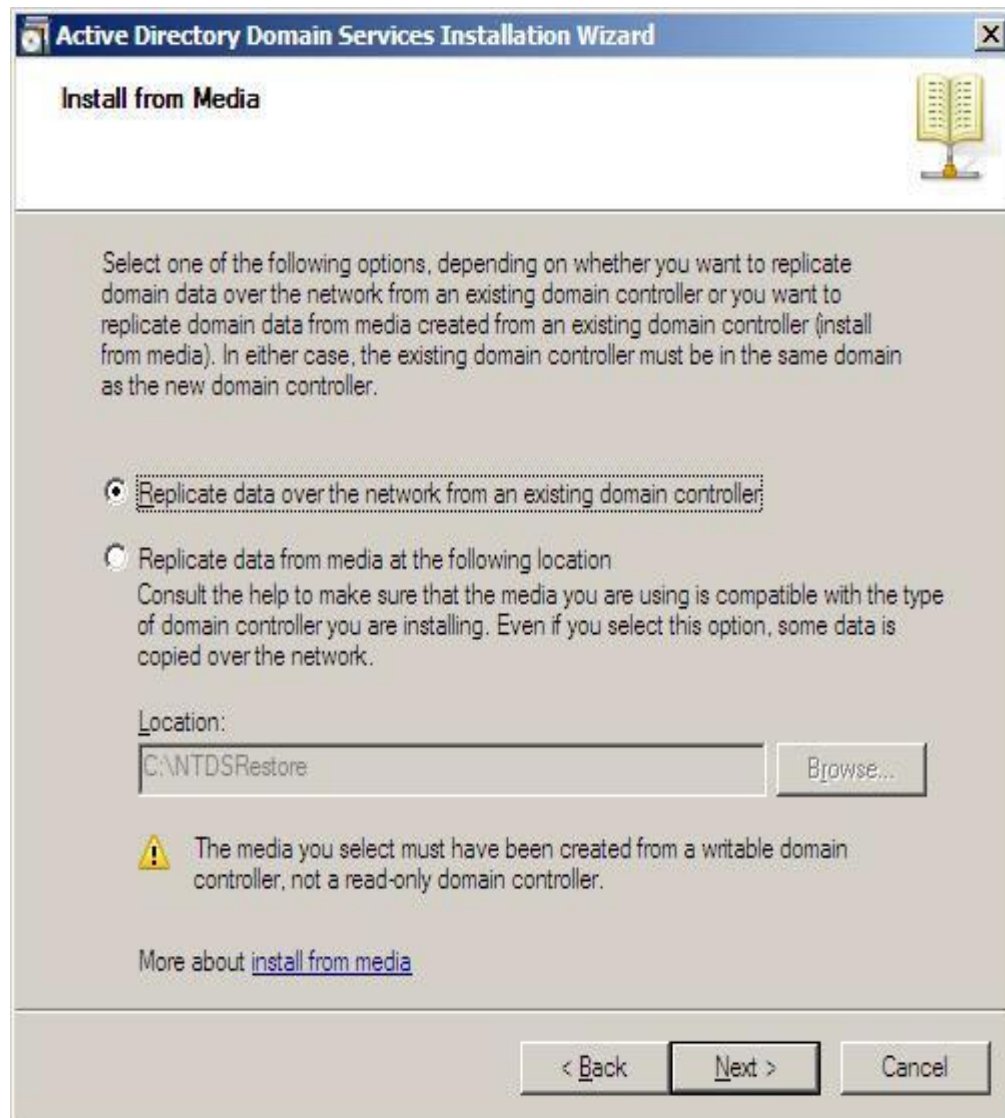
If you select the option to install DNS server in the previous step, then you will receive a message that indicates a DNS delegation for the DNS server could not be created and that you should manually create a DNS delegation to the DNS server to ensure reliable name resolution. If you are installing an additional domain controller in either the forest root domain (or a tree root domain) , you do not need to create the DNS delegation. In this case, you can safely ignore the message and click Yes.



Install from media

In the Install from Media page (will be displayed if you have selected Use advanced mode installation on the Welcome page, if you didn't select it, then skip to step # 15), you can choose to either replicate data over the network from an existing domain controller, or specify the location of installation media to be used to create the domain controller and configure AD DS. I want to replicate data over the network, so I will choose the first option > click Next

Install from media

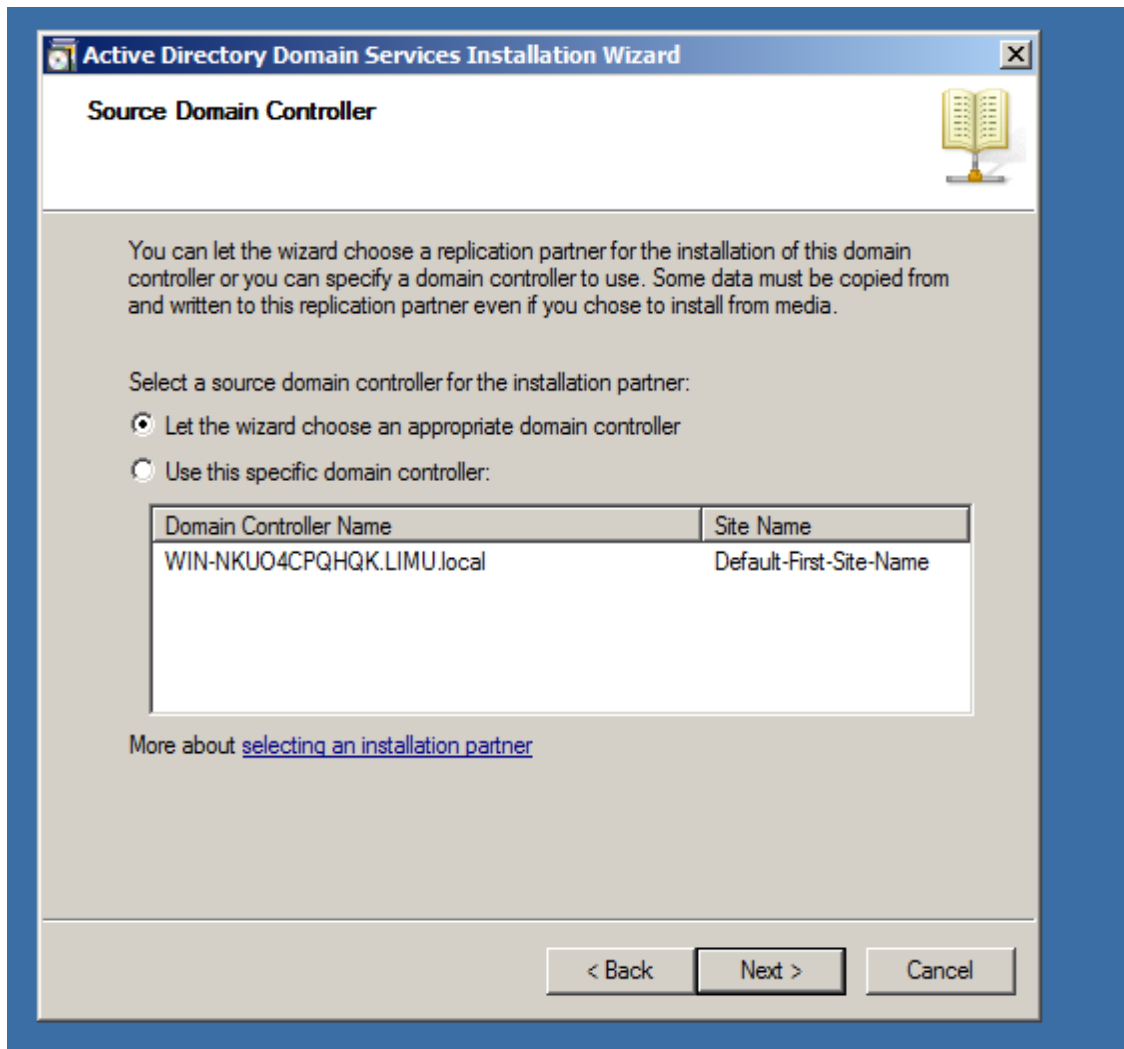


Select a source domain

On the Source Domain Controller page of the Active Directory Domain Services Installation Wizard, you can select which domain controller will be used as a source for data that must be replicated during installation, or you can have the wizard select which domain controller will be used as the source for this data. You have two options :

Let the wizard choose an appropriate domain controller Use this specific domain controller

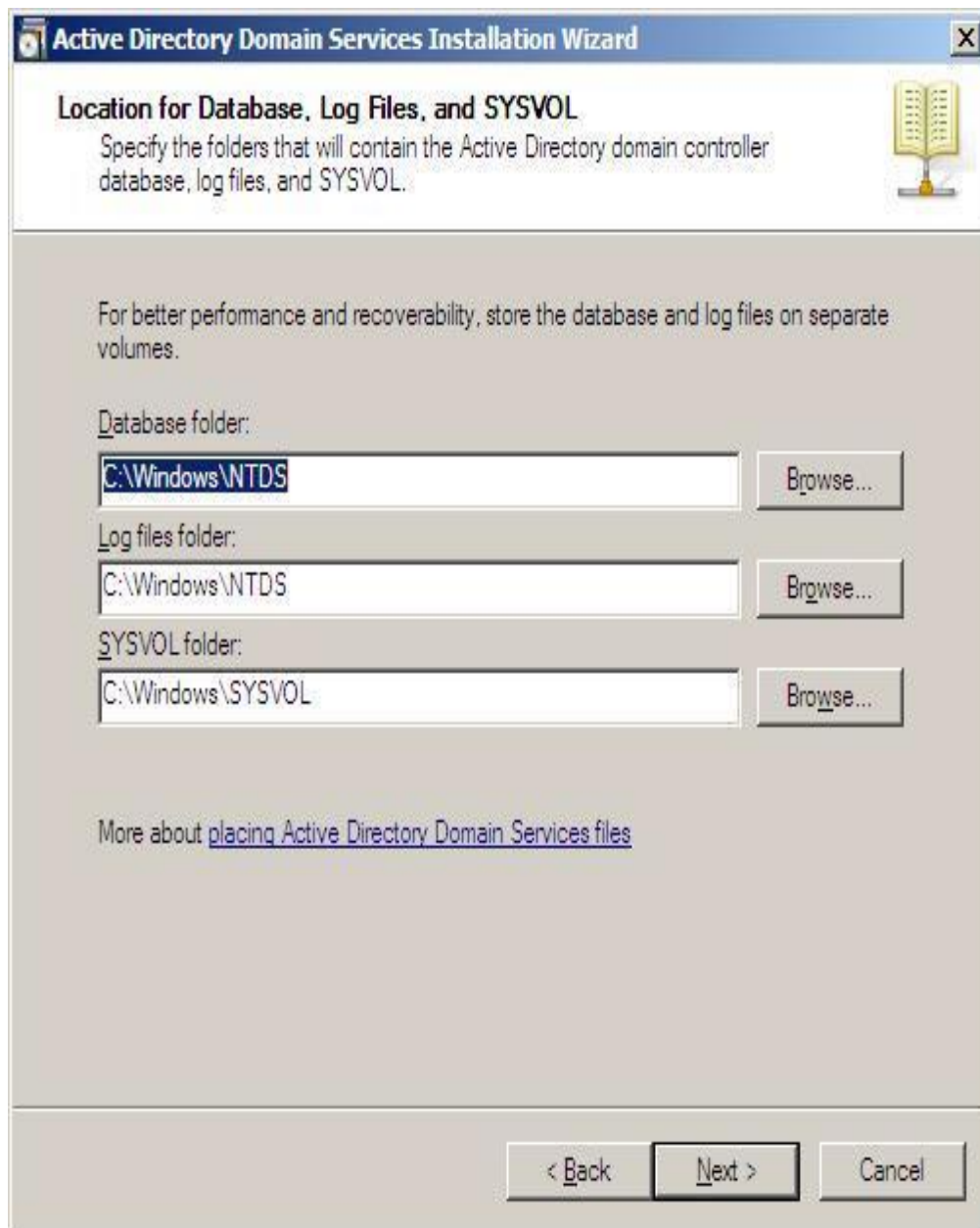
Select a source domain



Log file and sysvol

Now you will have to specify the location where the domain controller database, log files and SYSVOL are stored on the server. The database stores information about the users, computers and other objects on the network. the log files record activities that are related to AD DS, such information about an object being updated. SYSVOL stores Group Policy objects and scripts. By default, SYSVOL is part of the operating system files in the Windows directory Either type or browse to the volume and folder where you want to store each, or accept the defaults and click on Next

Finish installation



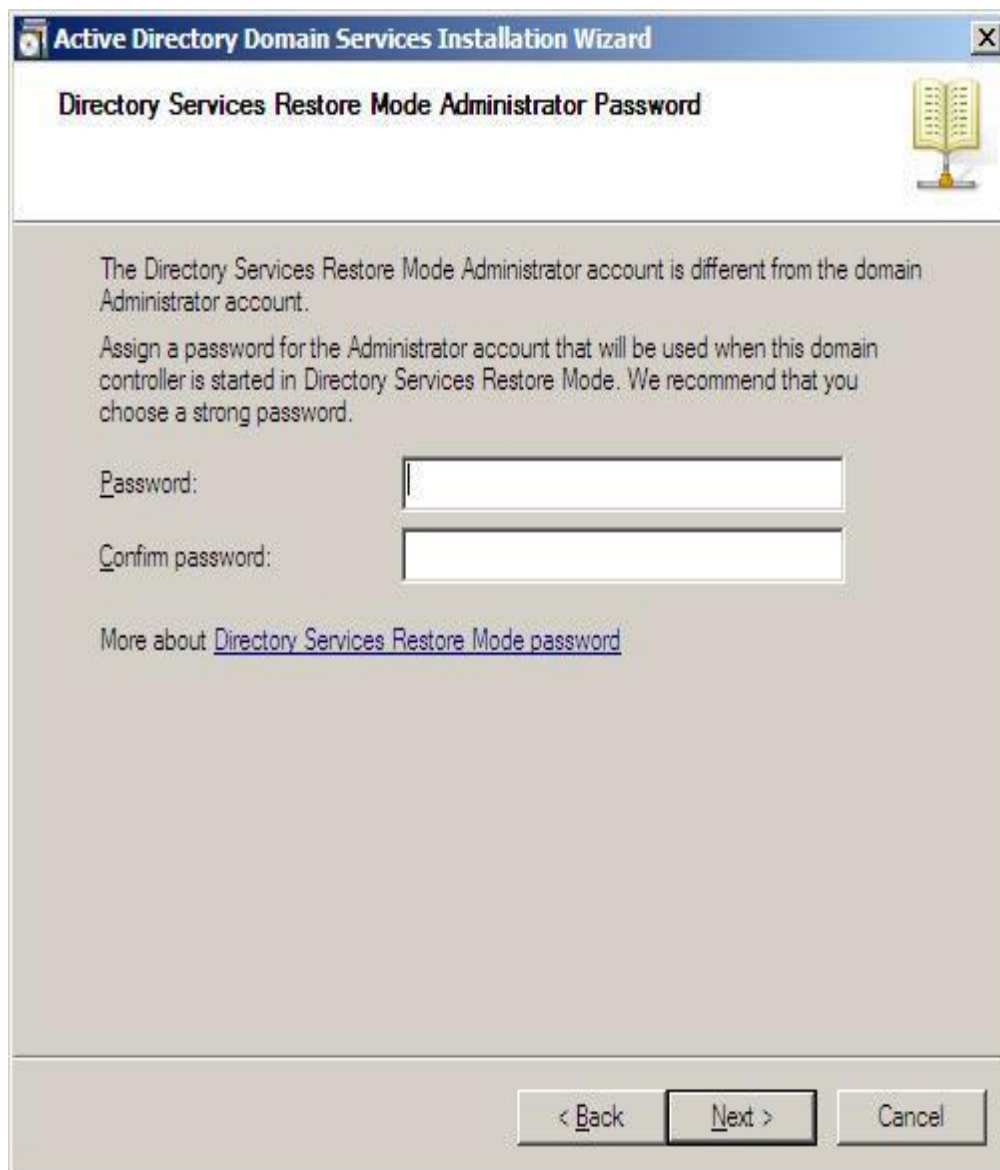
Backup and recovery

Note : Windows Server Backup backs up the directory service by volume. For backup and recovery efficiency, store these files on separate volumes that do not contain applications or other nondirectory files.

- In the Directory Services Restore Mode Administrator Password (DSRM) page, write a password and confirm it. This password is used when the domain controller is started in Directory Services

Restore Mode, which might be because Active Directory Domain Services is not running, or for tasks that must be performed offline.

Backup and recovery



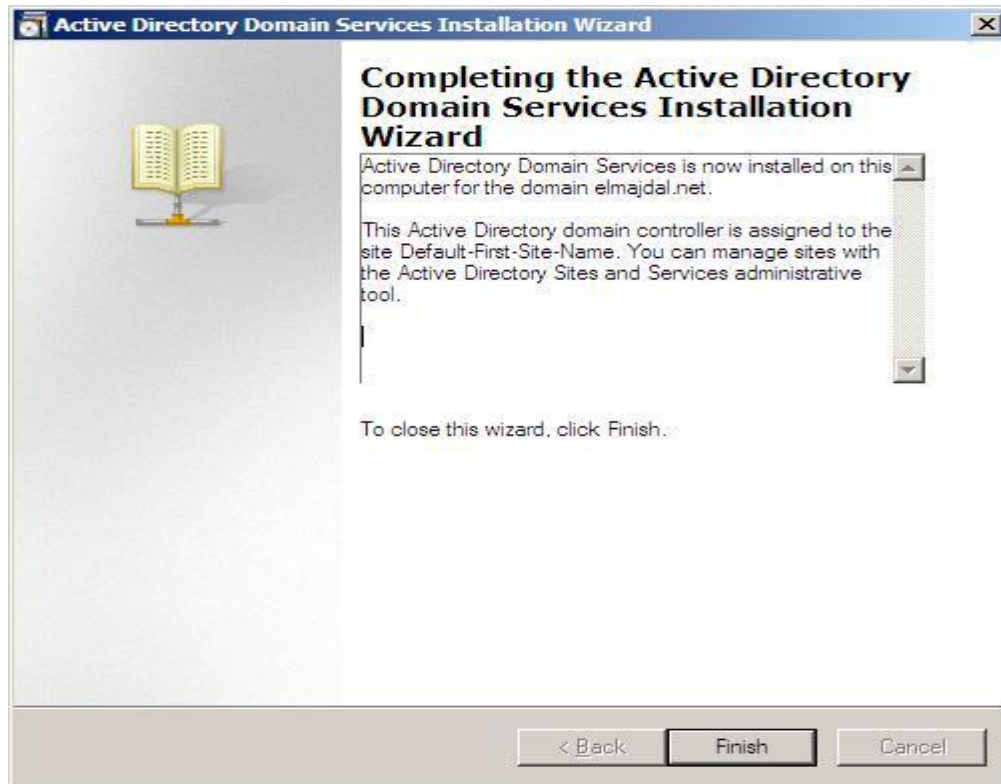
The screenshot shows the 'Active Directory Domain Services Installation Wizard' window. The title bar reads 'Active Directory Domain Services Installation Wizard'. The main heading is 'Directory Services Restore Mode Administrator Password'. Below the heading, there is an icon of an open book. The text explains that the Directory Services Restore Mode Administrator account is different from the domain Administrator account and that a password must be assigned for use when the domain controller is started in Directory Services Restore Mode. It recommends a strong password. There are two input fields: 'Password:' and 'Confirm password:'. Below these fields is a link that says 'More about [Directory Services Restore Mode password](#)'. At the bottom of the window, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Finish installation

Summary page will be displayed showing you all the setting that you have set . It gives you the option to export the setting you have setup into an answer file for use to automate subsequent AD DS operations, if you wish to have such file, click on the Export settings button and save the file. Then click Next to begin AD DS installation

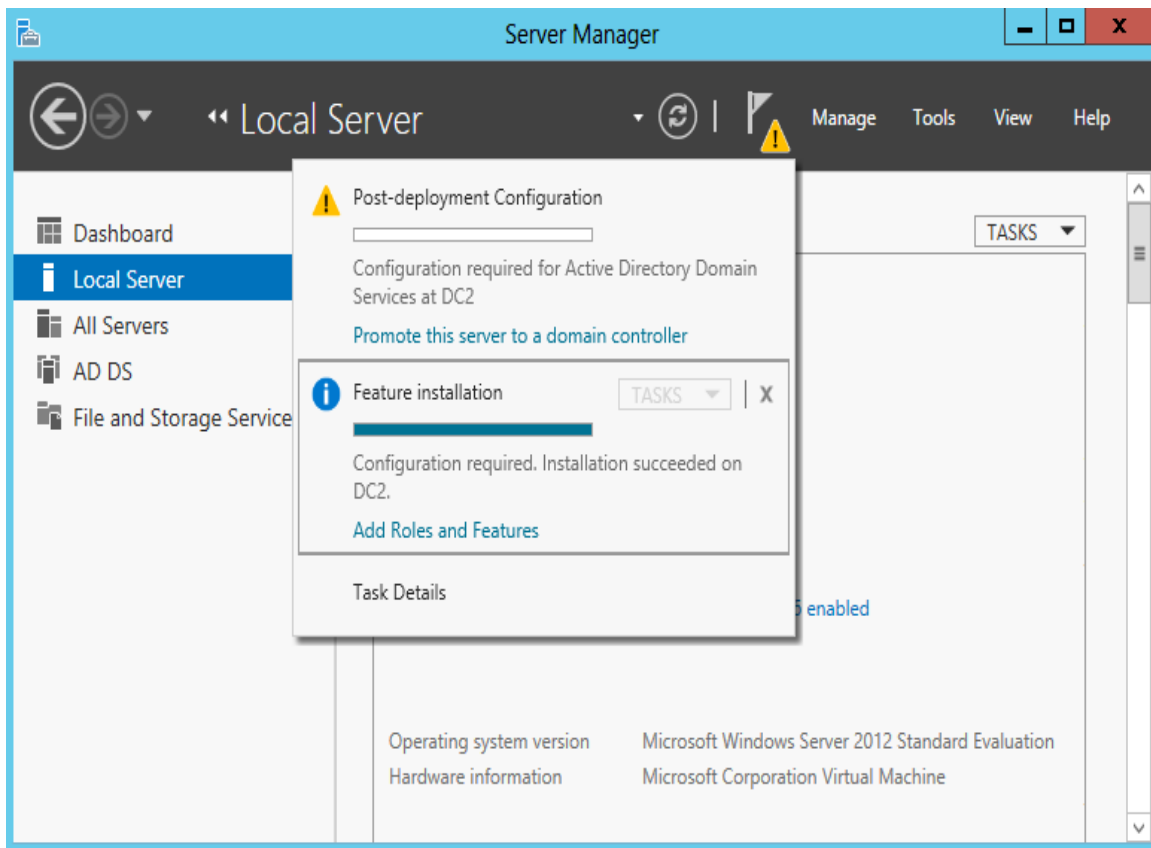
Finish installation

Active Directory Domain Services installation will be completed, click Finish, then click on Restart Now to restart your server for the changes to take effect

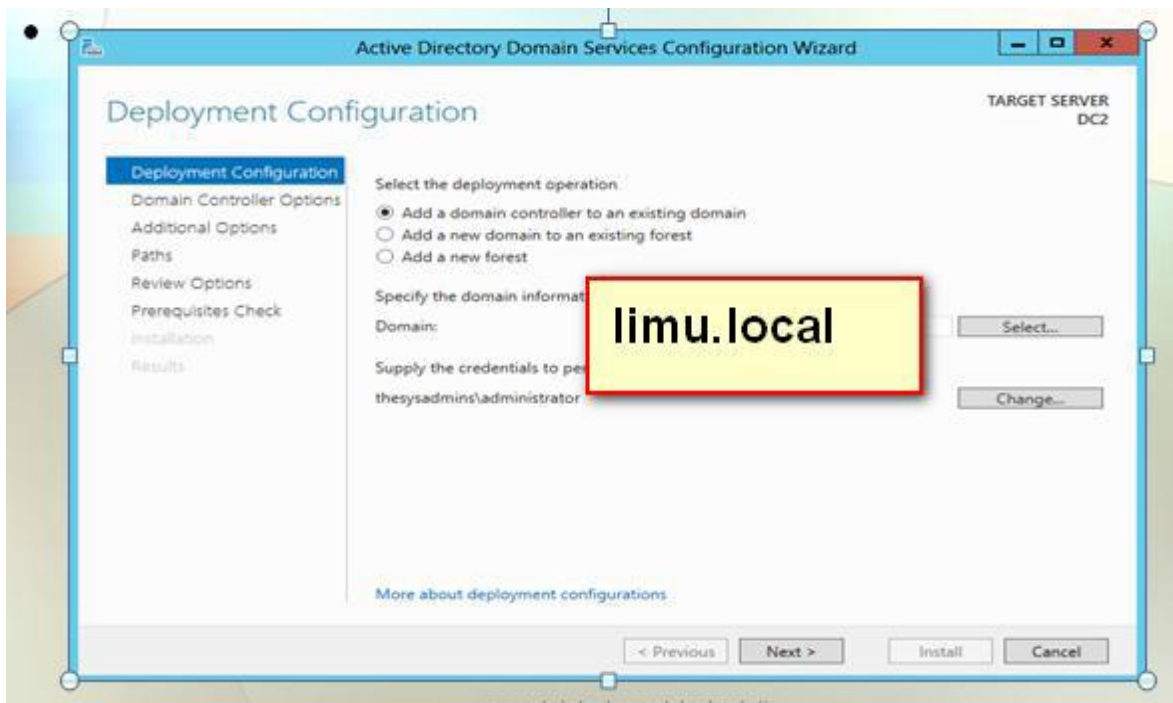


26.2- Read only domain control in windows server 2012

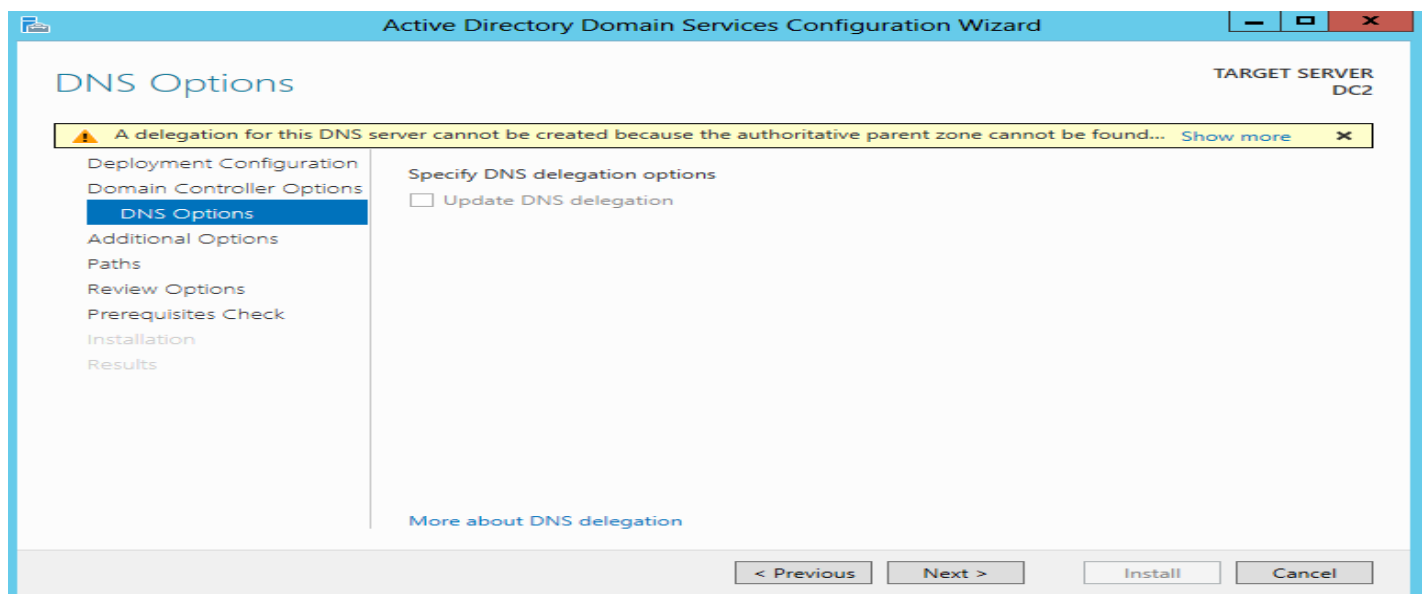
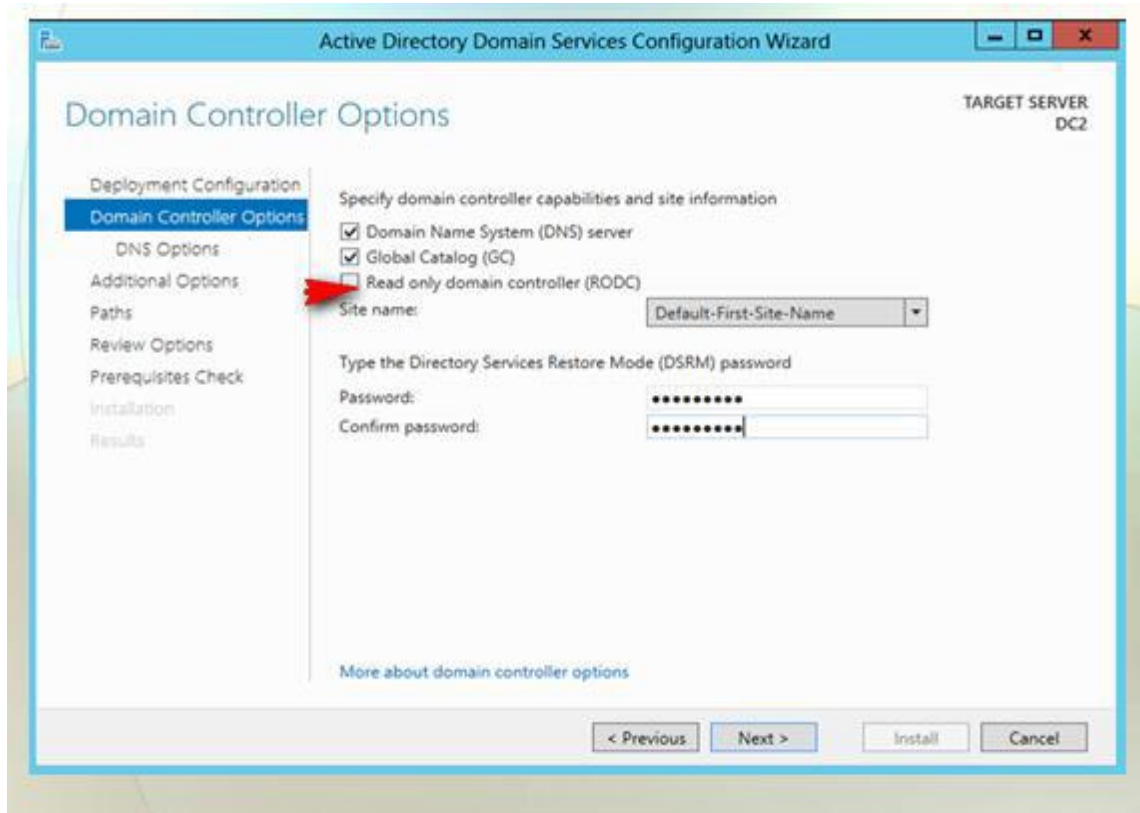
You'll now notice you have a notification, prompting you to promote this server to a domain controller.



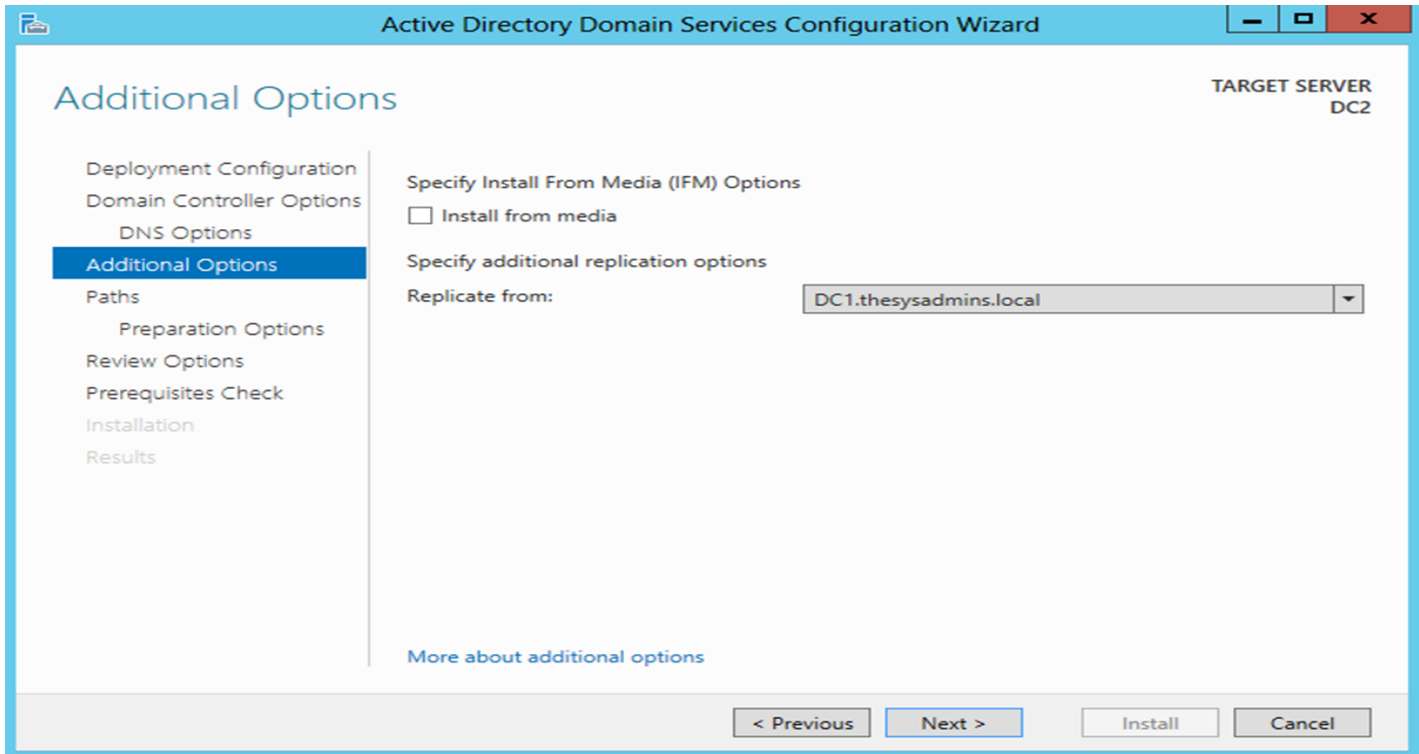
We are adding a domain controller to an existing domain, specify the domain and domain administrator credentials



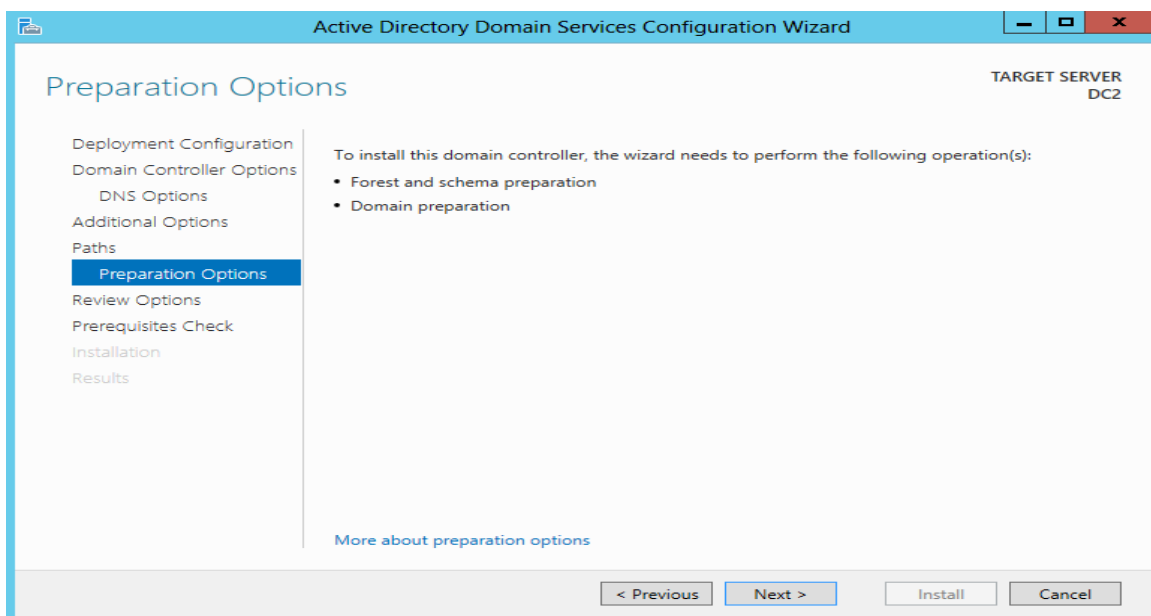
It will make the read only DC a DNS and GC by default, we do not want to make this a Read Only Domain Controller. You have the option to add the DC to a particular Site. Enter your DSRM password (as usual, keep this safe!).



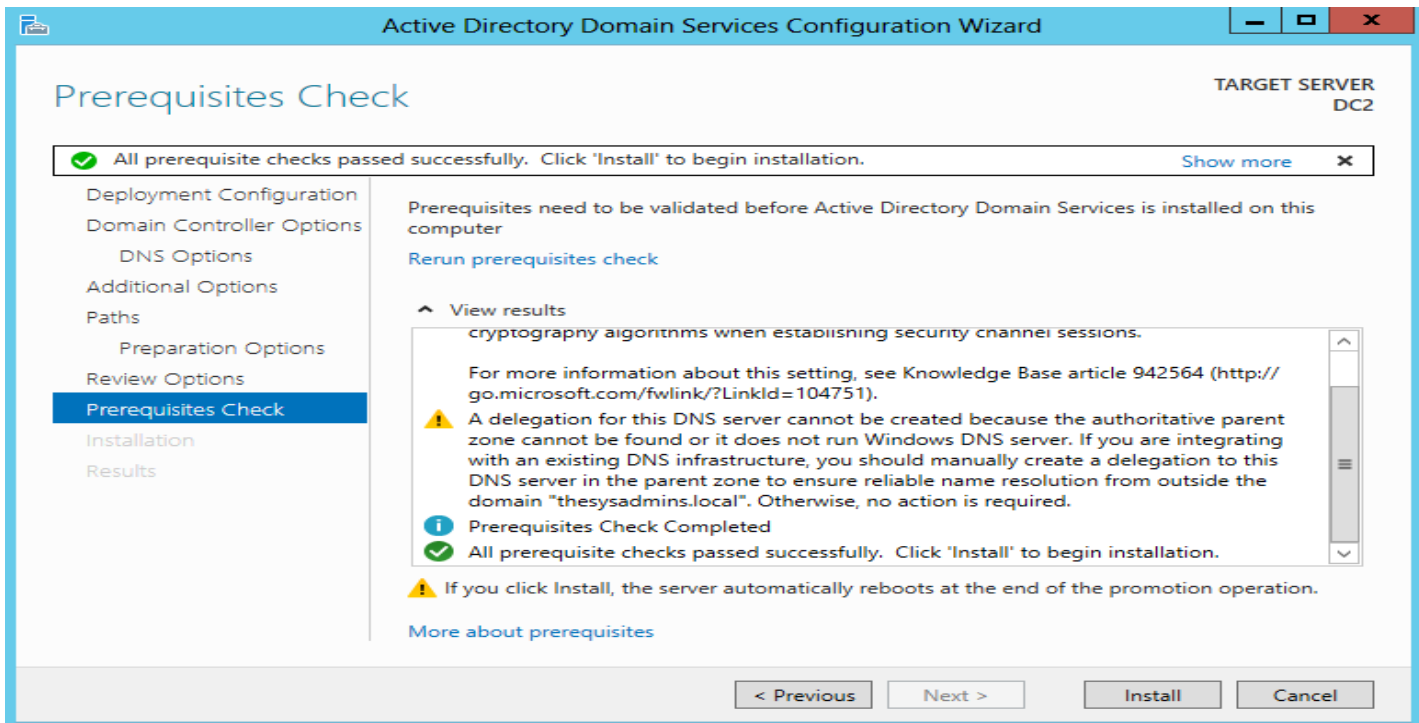
You can install from Media, which is useful if you are promoting a DC in a branch office with a poor connection- it will significantly reduce the initial Active Directory replication. You can specify a particular DC for the initial replication.



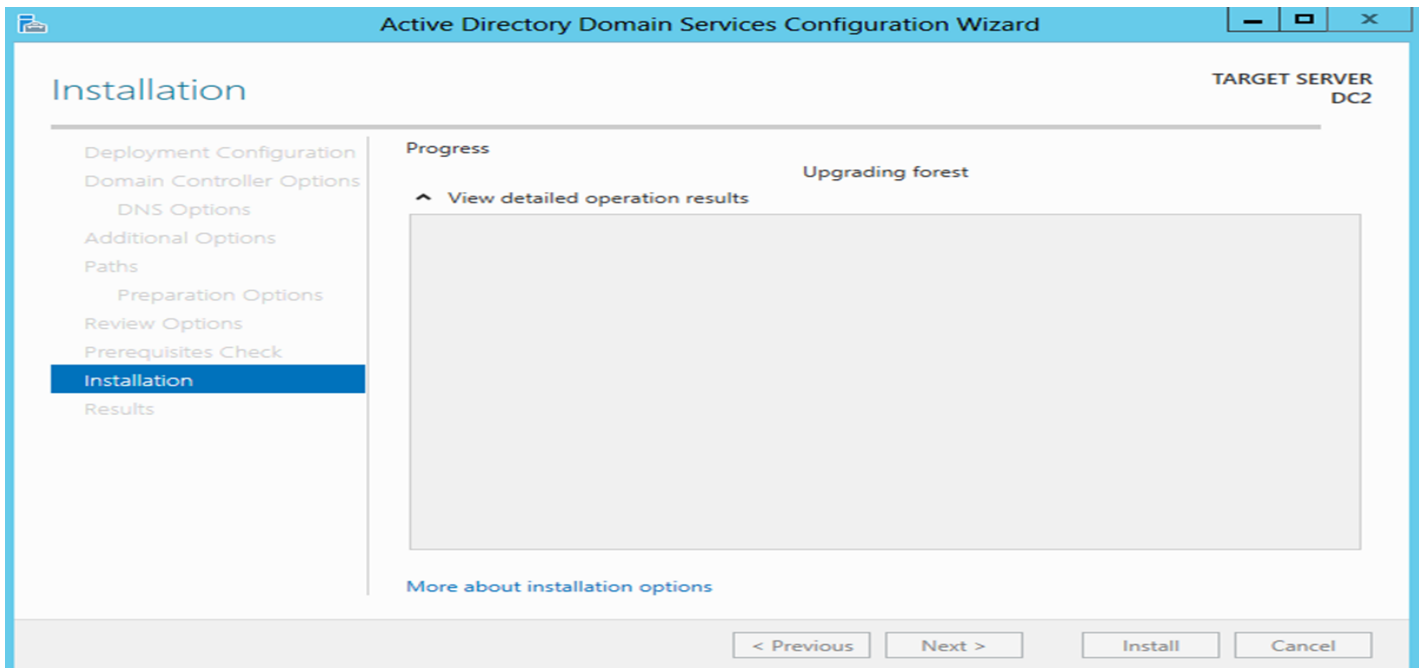
This screen tells us it will prepare the Forest, Schema and domain for us (Server 2012 uses Schema Version).



Click Install.



The install will tick over and when it has finished the server will be restarted.



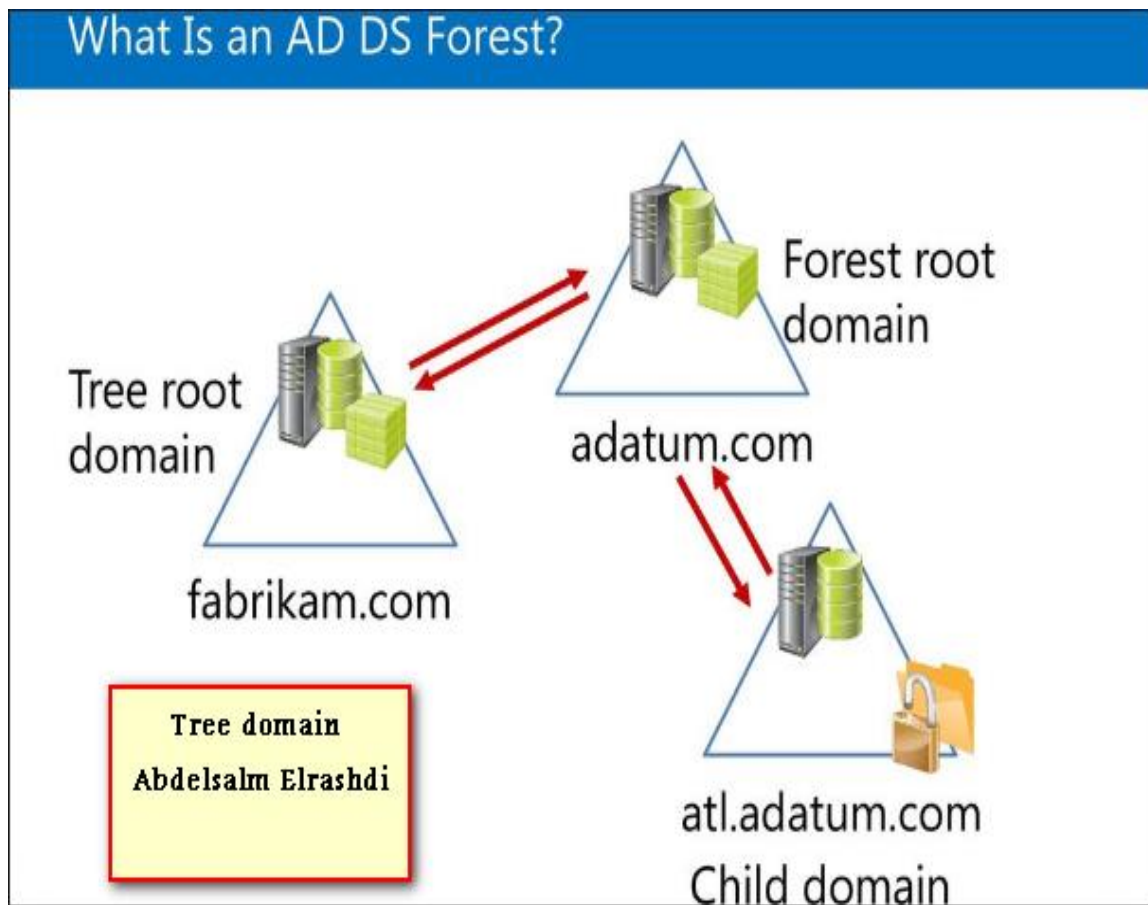
27- Tree Domain

تتكون شجرة المجال من عدة نطاقات تشترك في مخطط وتكوين شائعين ، مما يشكل مساحة اسم مجاورة. يتم أيضاً ربط المجالات في شجرة معاً بواسطة علاقات الثقة. الدليل النشط عبارة عن مجموعة واحدة أو أكثر من الأشجار.

A domain tree is made up of several domains that share a common schema and configuration, forming a contiguous namespace. Domains in a tree are also linked together by trust relationships. Active Directory is a set of one or more trees.

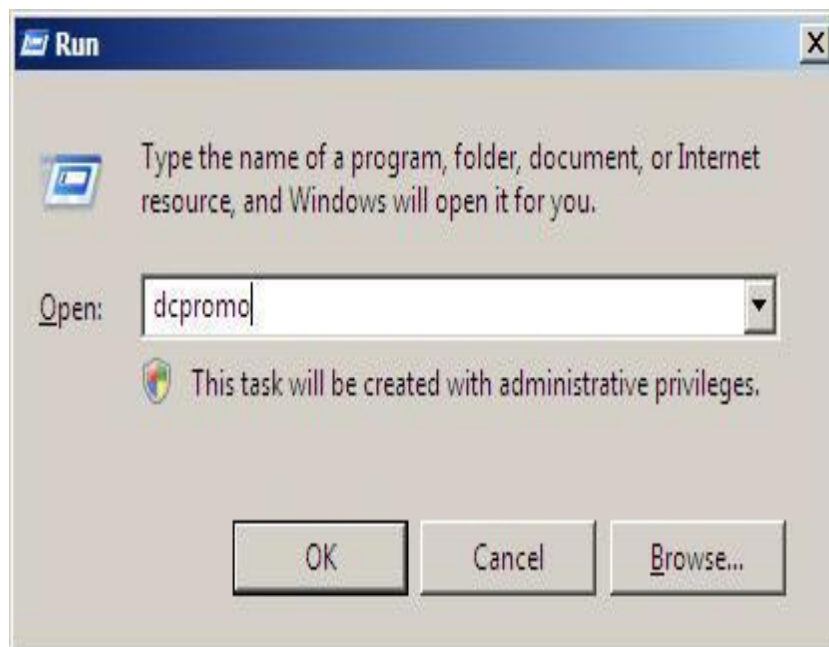
Trees can be viewed two ways. One view is the trust relationships between domains. The other view is the namespace of the domain tree. Child domain is a part of your main domain, if yahoo.com is your main domain then your sub domain will be mail.yahoo.com.

Domain Controller is simply a physical machine, on which you install your domain.

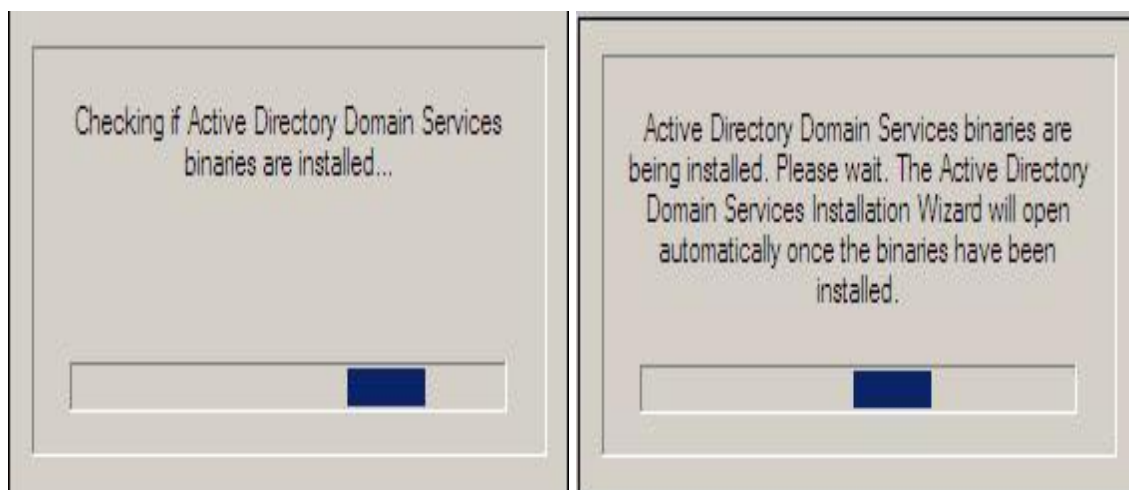


27.1- Install tree Domain in windows server 2008

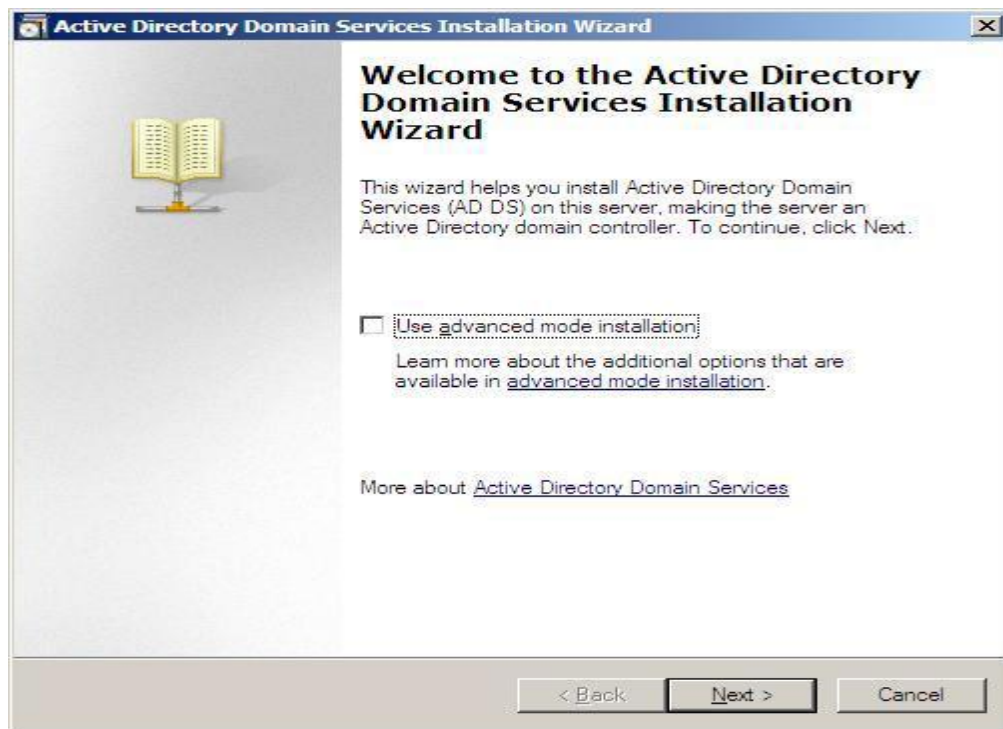
To set up an tree Domain, I will use the dcpromo.exe command. To use the command, click on Start > Run > and then write dcpromo > Click OK



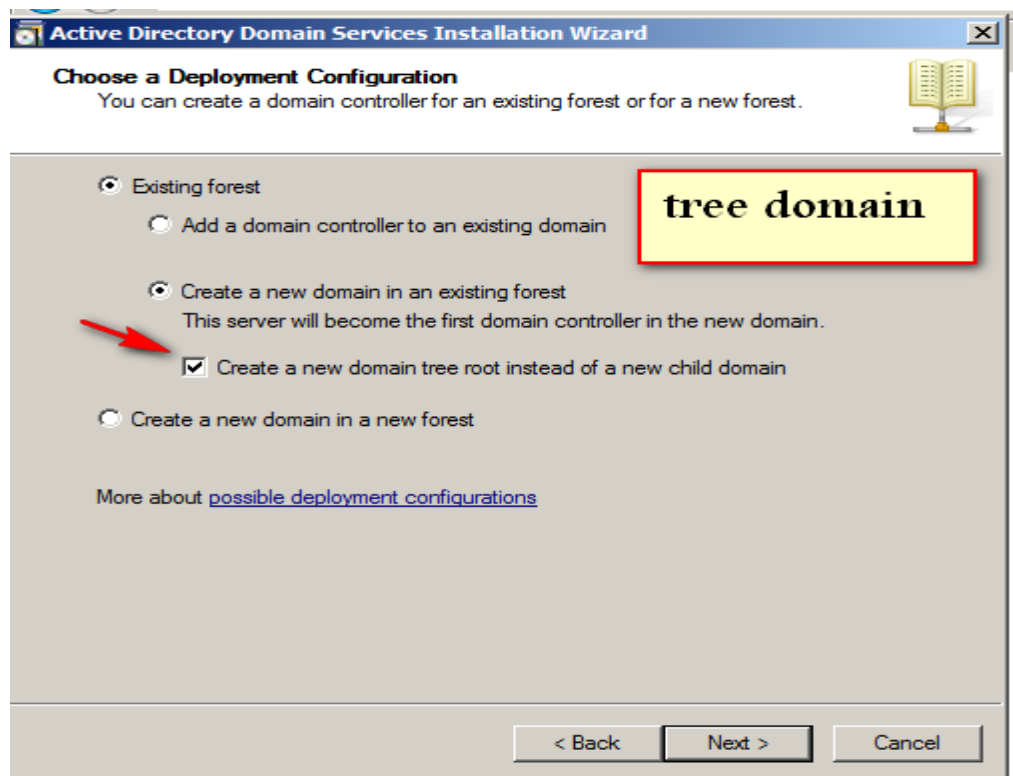
The system will start checking if Active Directory Domain Services (AD DS) binaries are installed, then will start installing them. The binaries could be installed if you had run the dcpromo command previously and then canceled the operation after the binaries were installed.



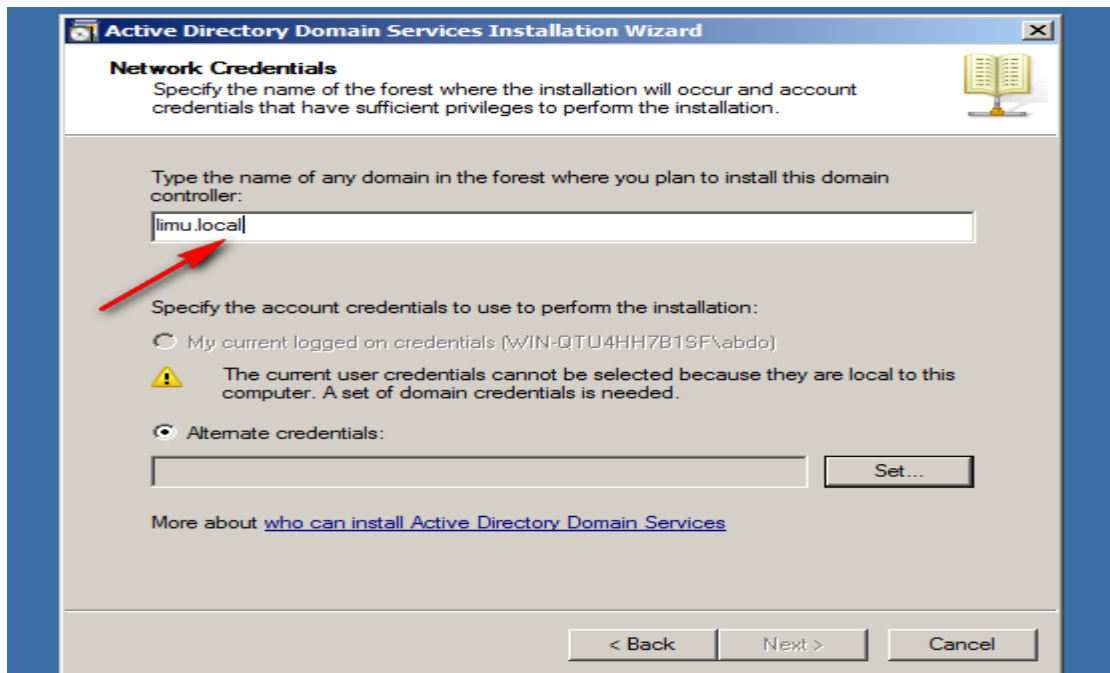
The Active Directory Domain Services Installation Wizard will start, either enable the checkbox beside Use Advanced mode installation and Click Next , or keep it unselected and click on Next



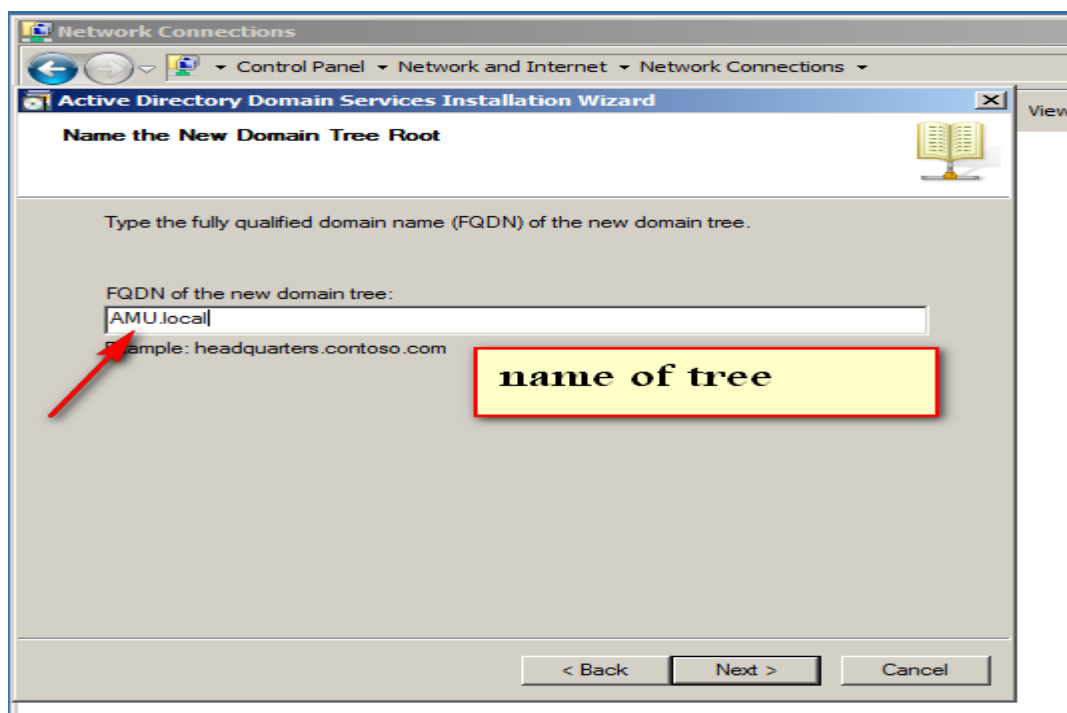
Select create a new domain tree root instead of a new child domain



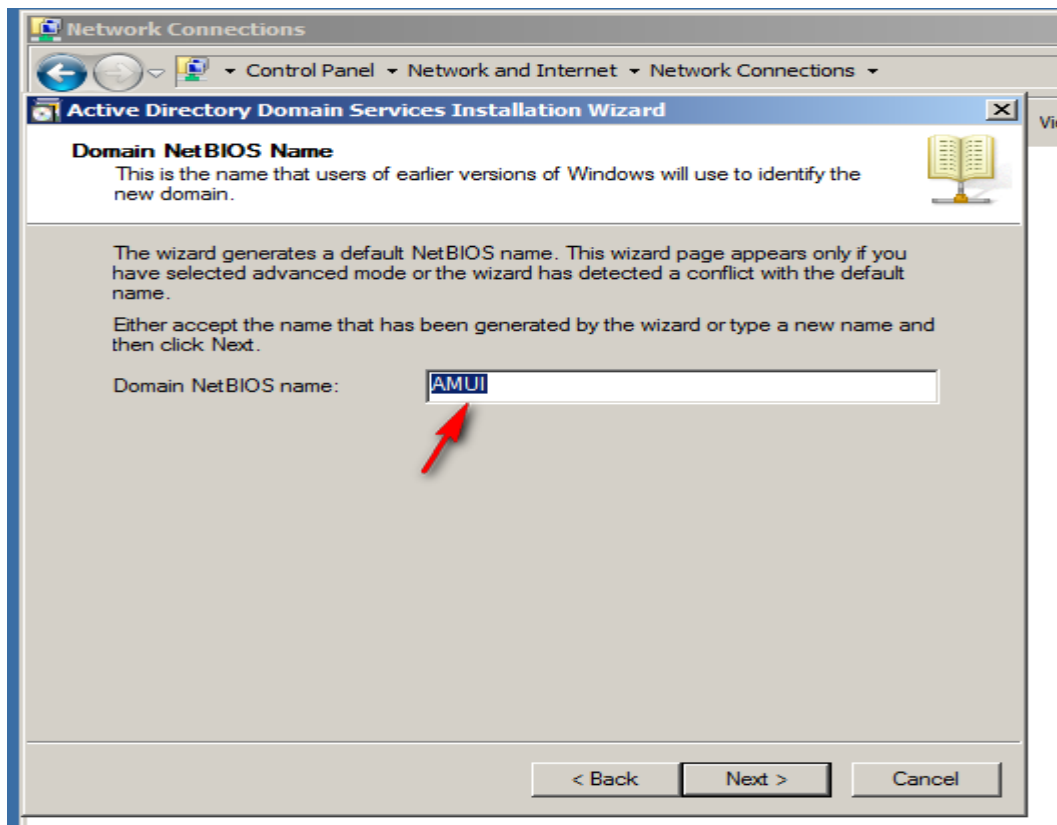
Write name of parent domain



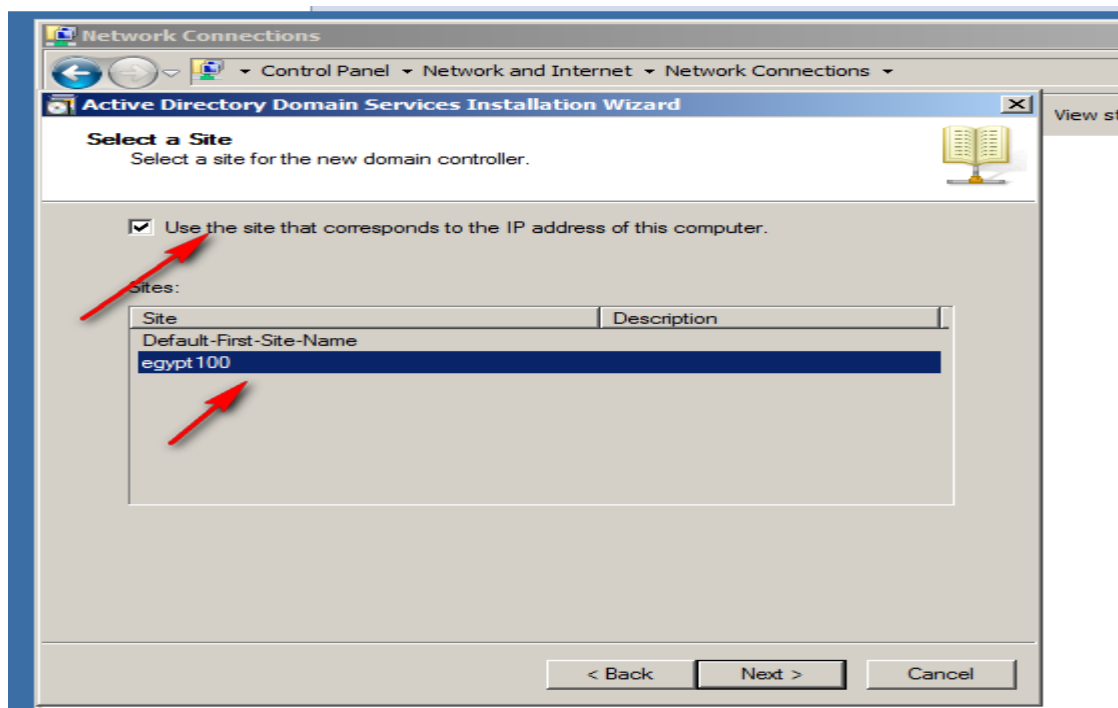
Name of tree



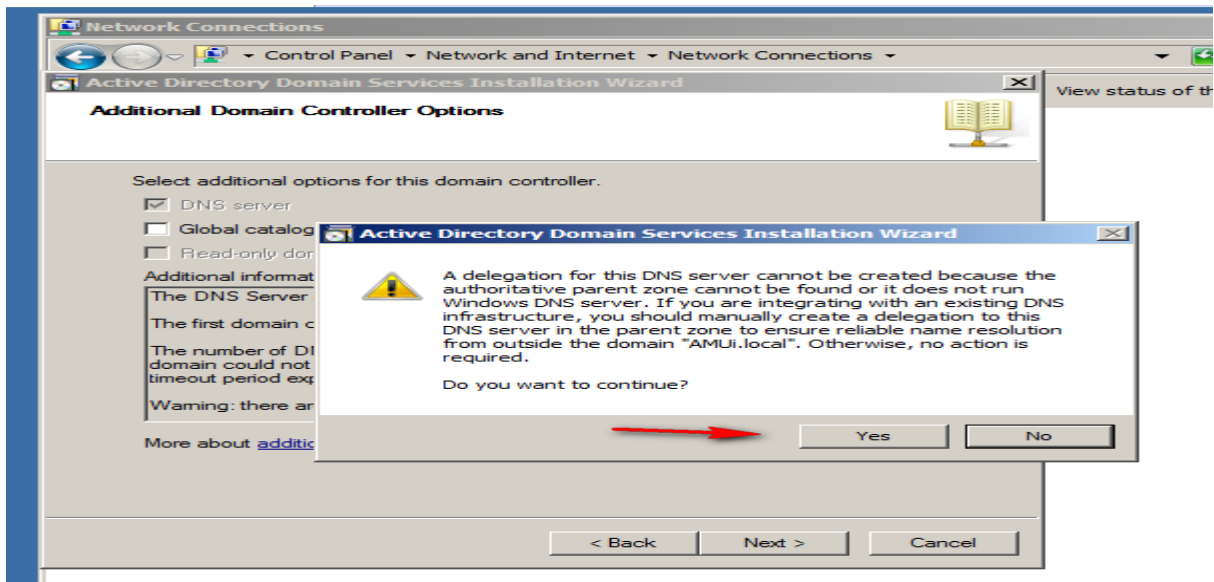
Domain Netbios name



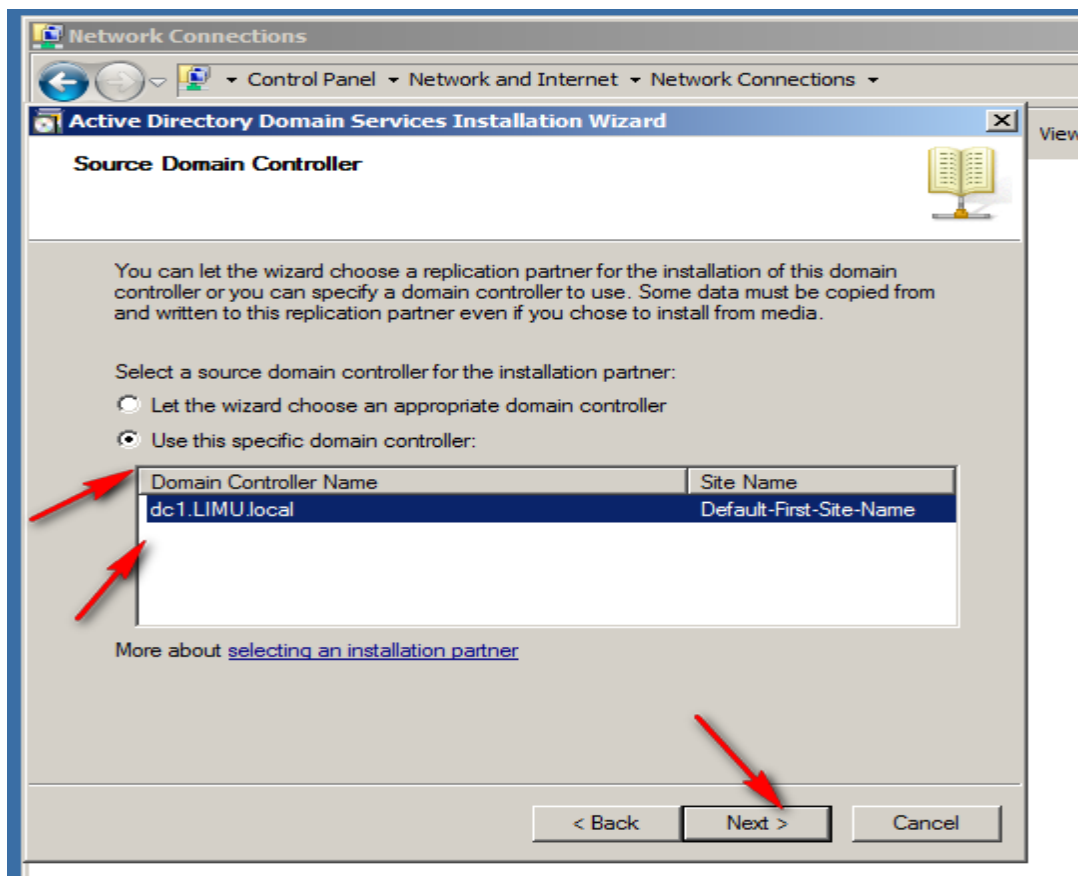
Select a site



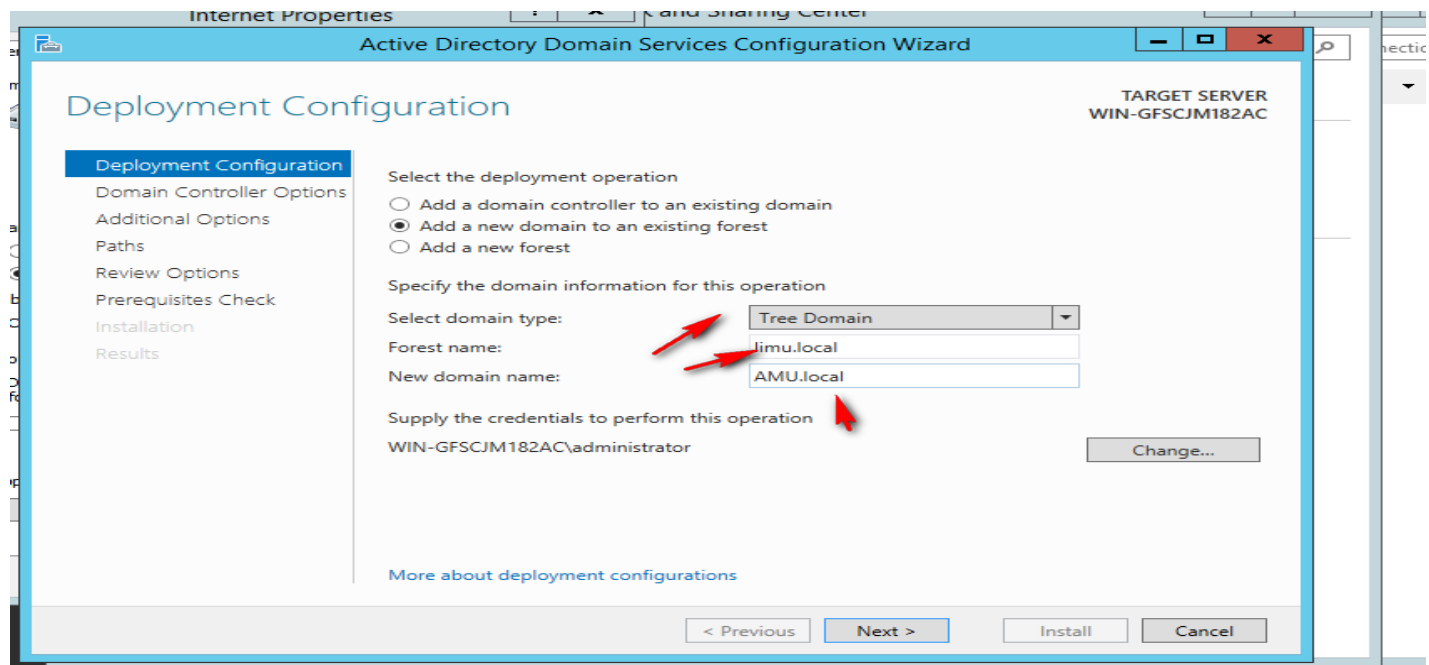
DNS



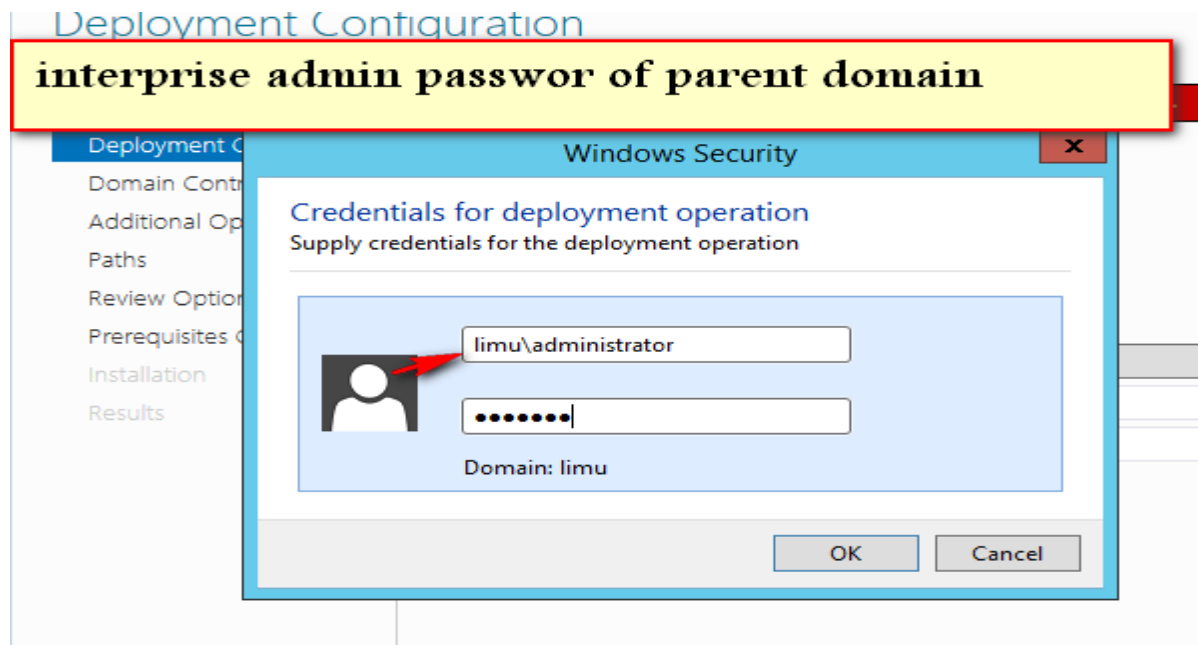
Source domain controller



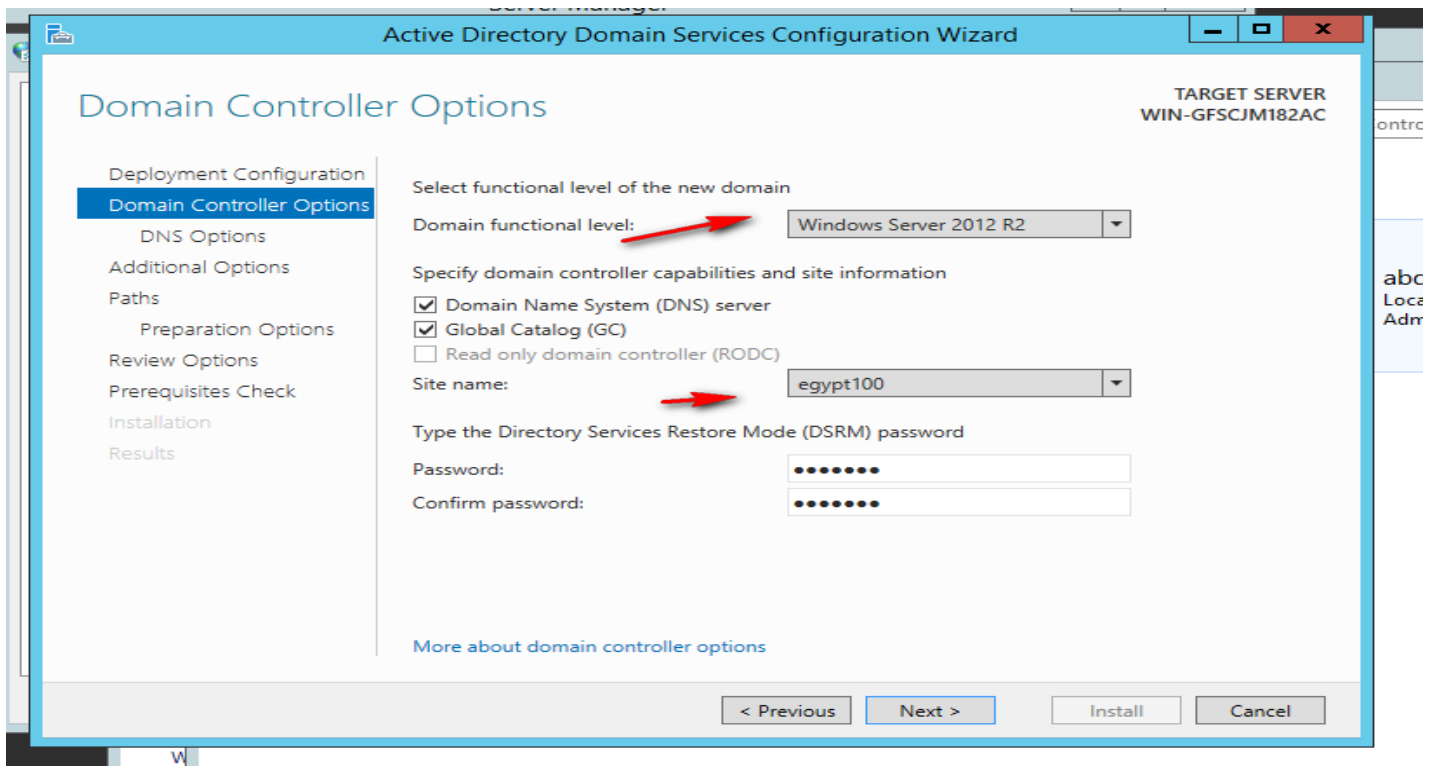
27.2- Install tree Domain in windows server 2012



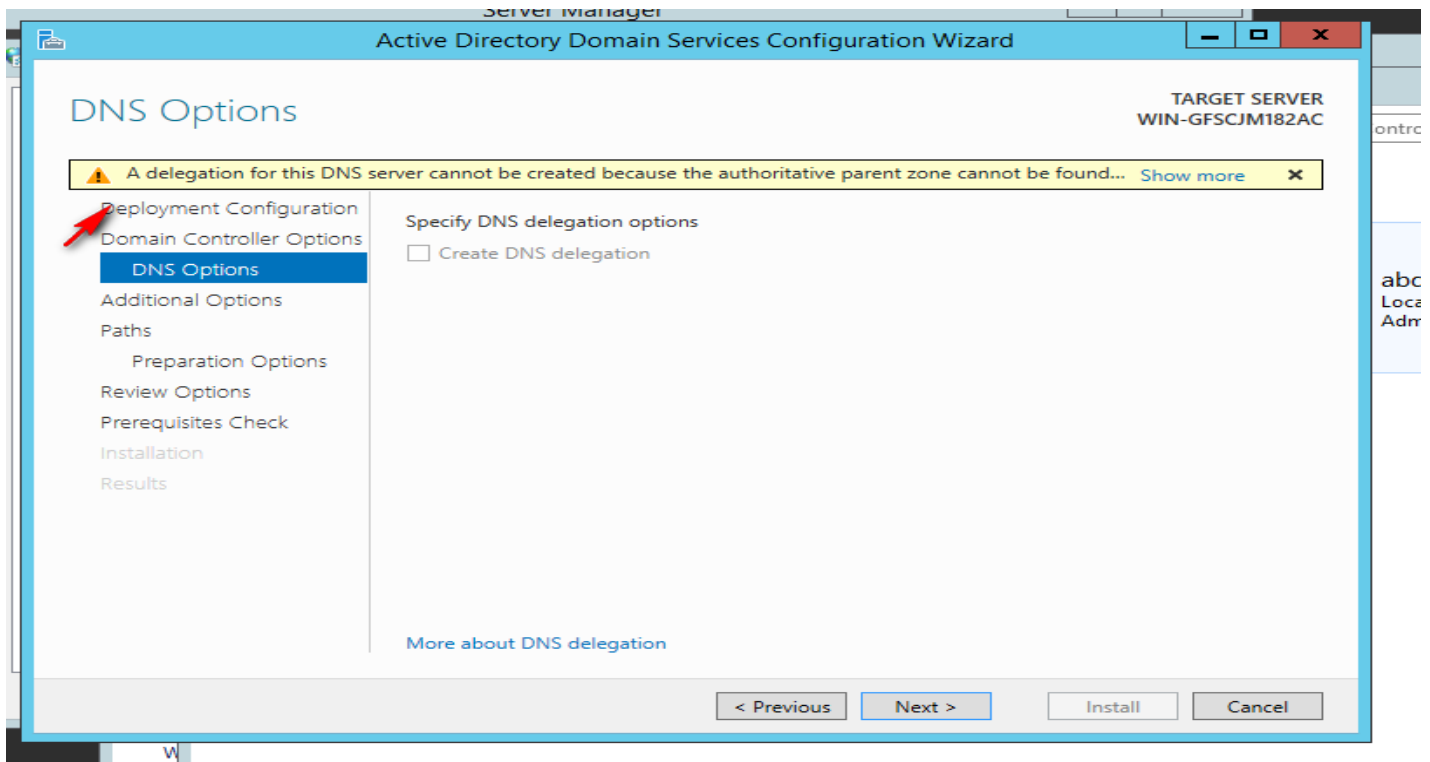
Enterprise admin password of parent domain



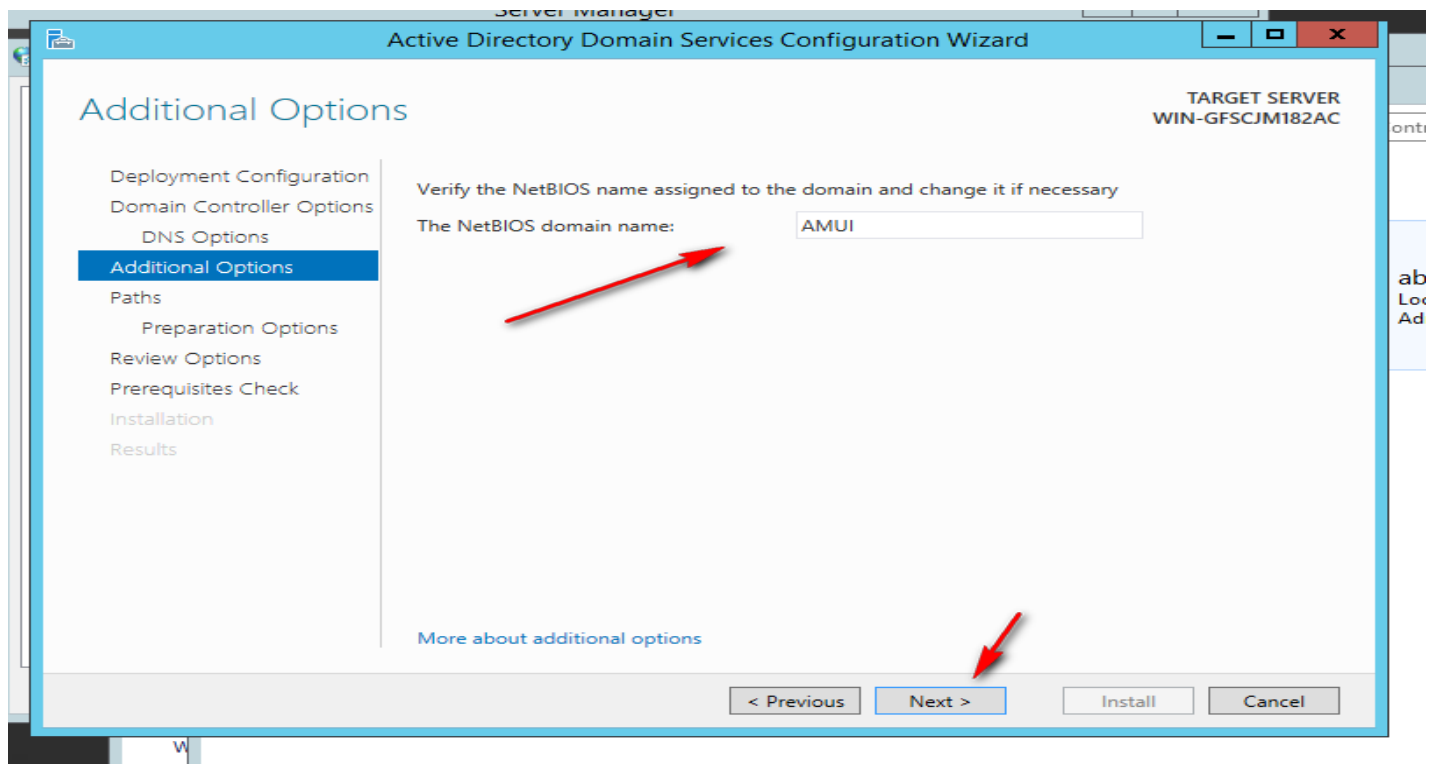
Select the following options



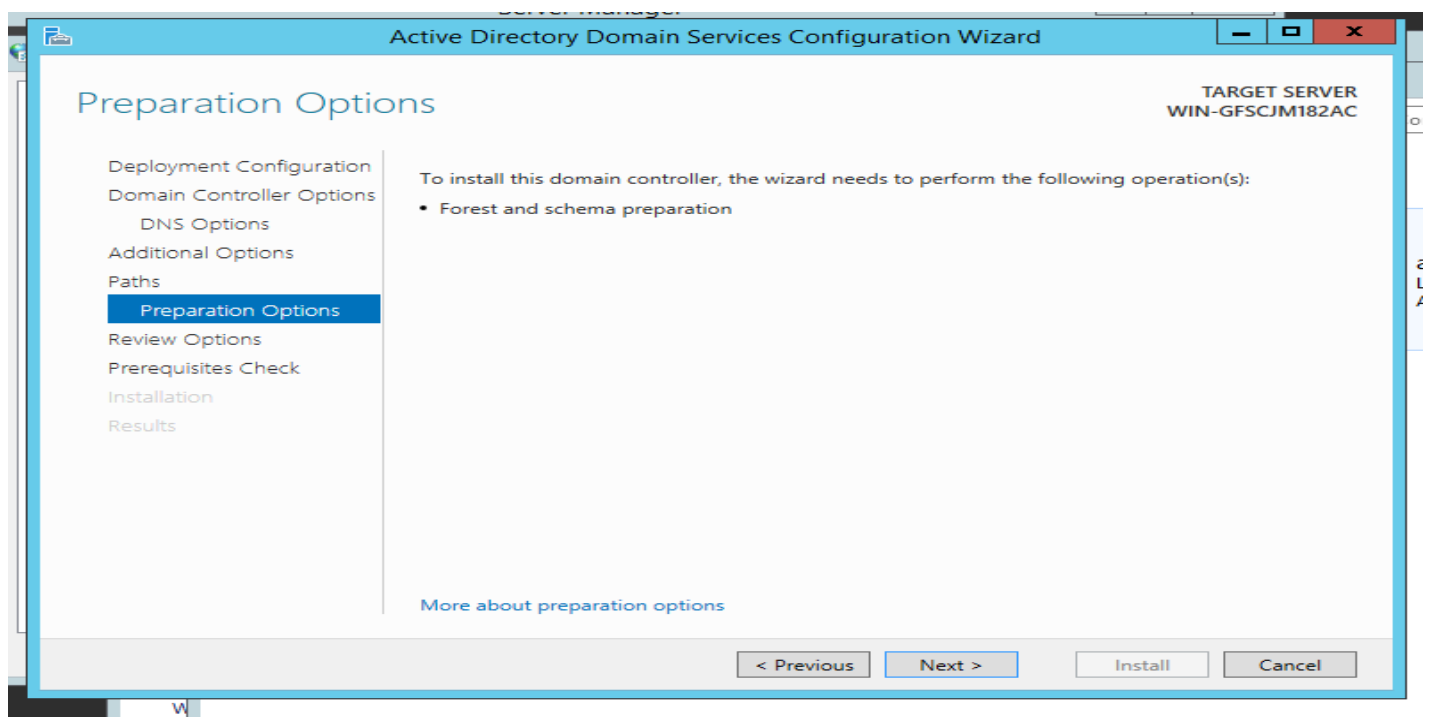
DNS



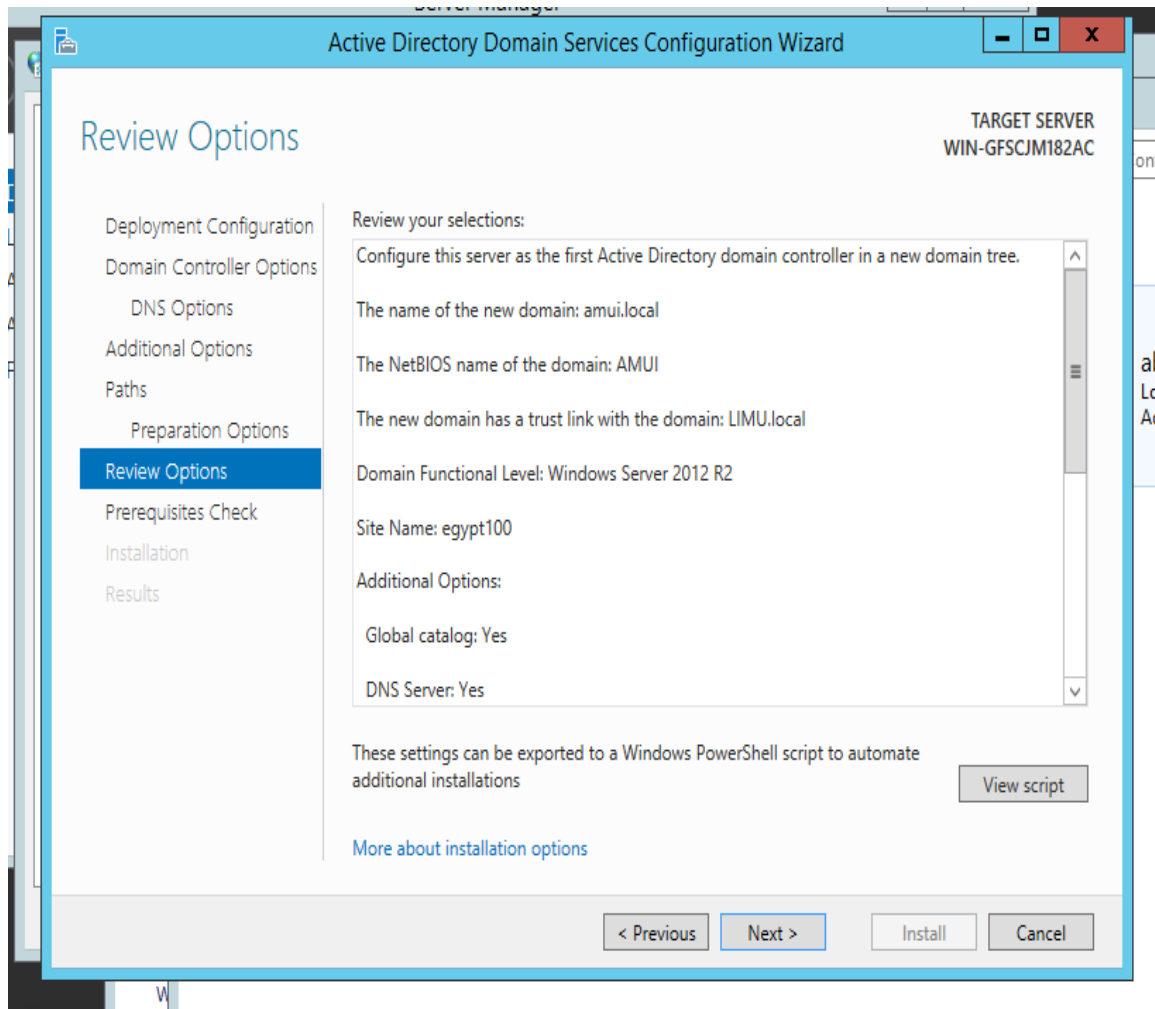
Netbios domain name



Next



Next then finish

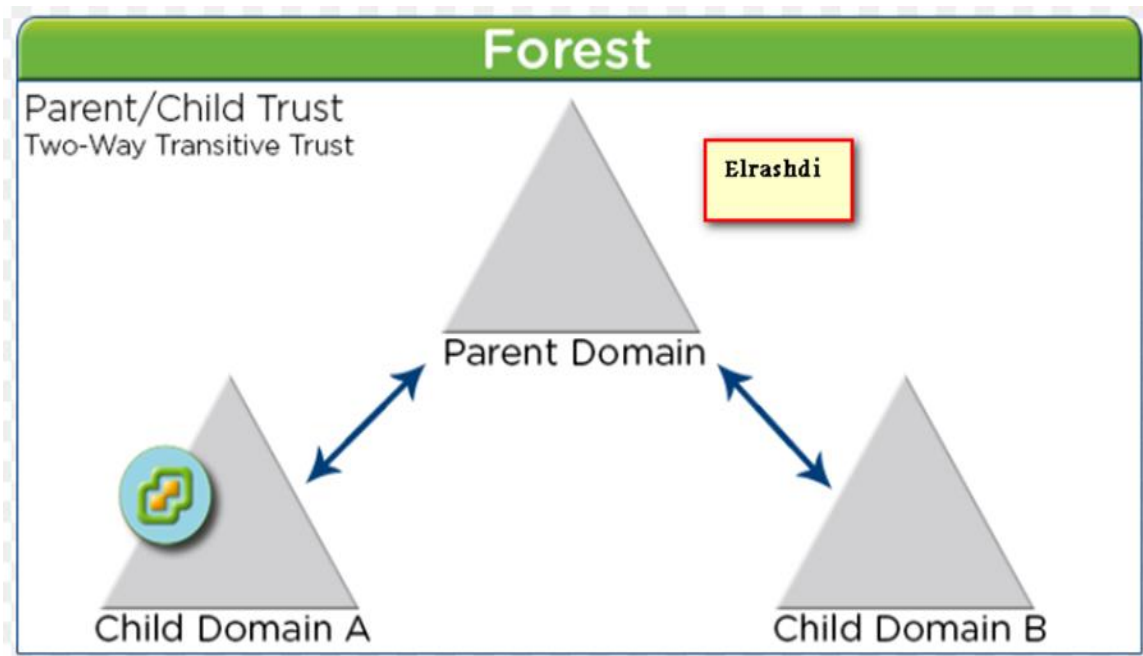


28-Child Domain

A child domain هو domain آخر ضمن أحد الأبوين في تسلسل هرمي في active directory النشط. سيرث نفس اسم مجال الرئيسي ويكون في نفس forest

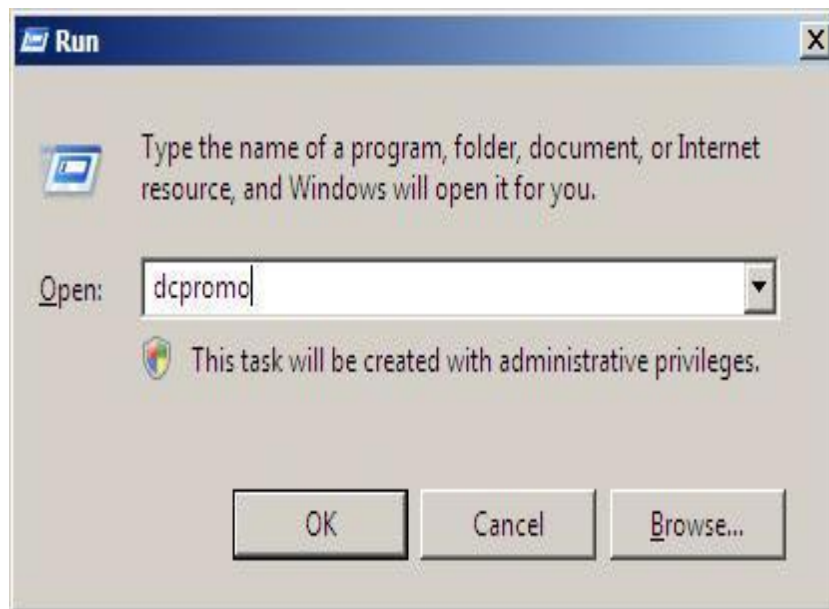
A child domain is another domain under a parent one in an active directory domain hierarchy. A child domain under a parent will inherit parent name and will in same forest

You require additional domains within your AD DS forest. If the new domain is to share a contiguous namespace with one or more domains, you need to create a new child domain.

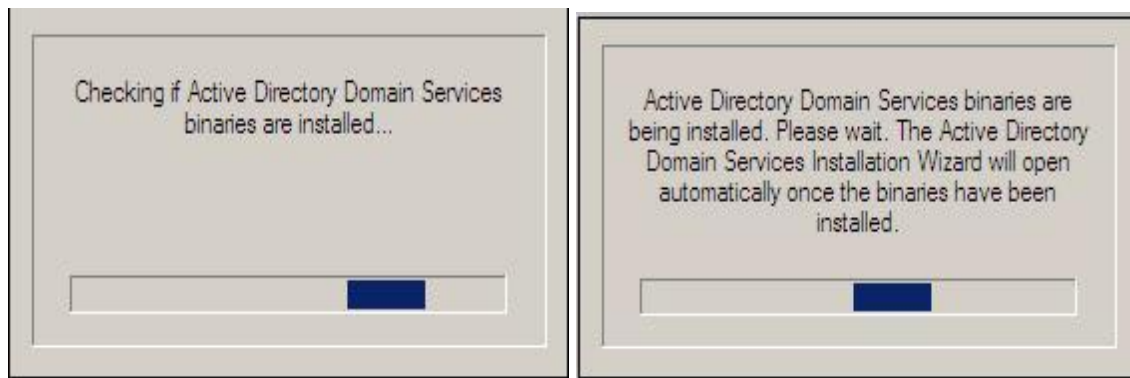


28.1- Child Domain in windows server 2008R2

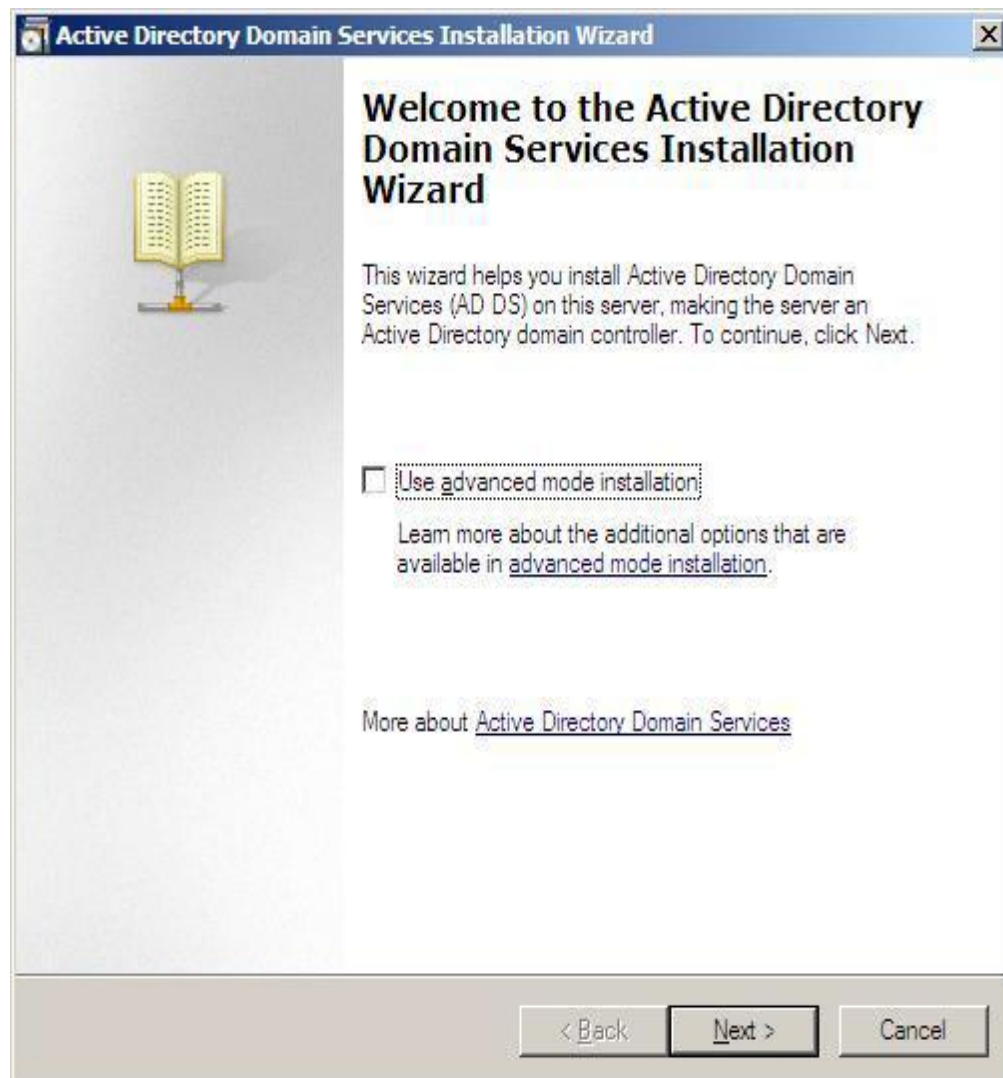
To set up an Additional Domain Controller, I will use the dcpromo.exe command. To use the command, click on Start > Run > and then write dcpromo > Click OK



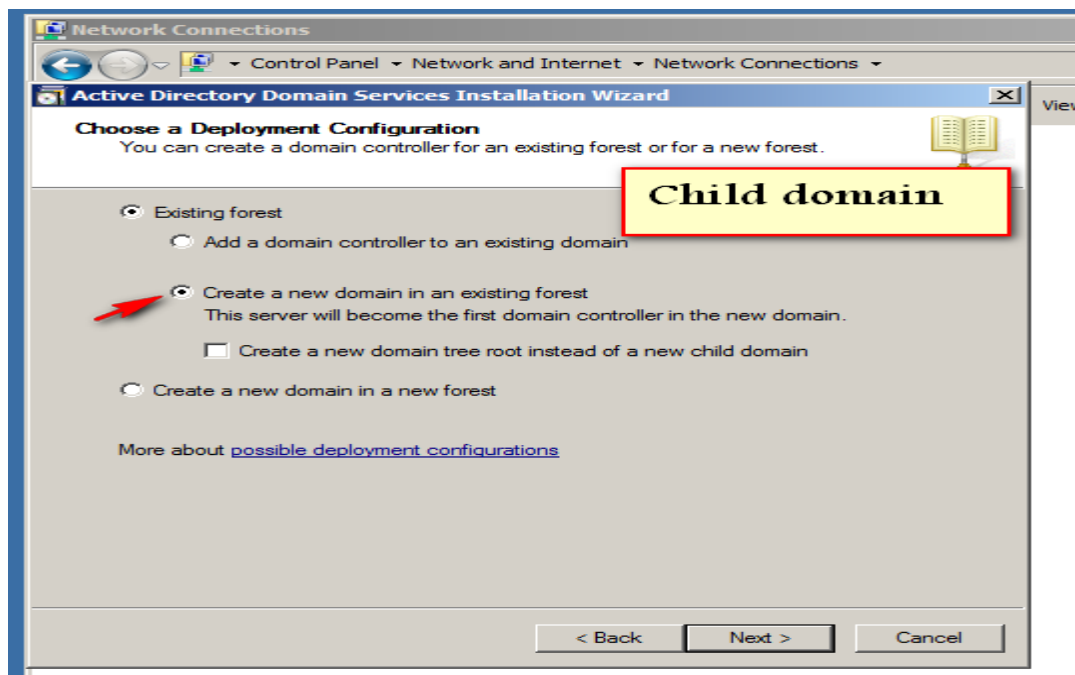
The system will start checking if Active Directory Domain Services (AD DS) binaries are installed, then will start installing them. The binaries could be installed if you had run the dcpromo command previously and then canceled the operation after the binaries were installed.



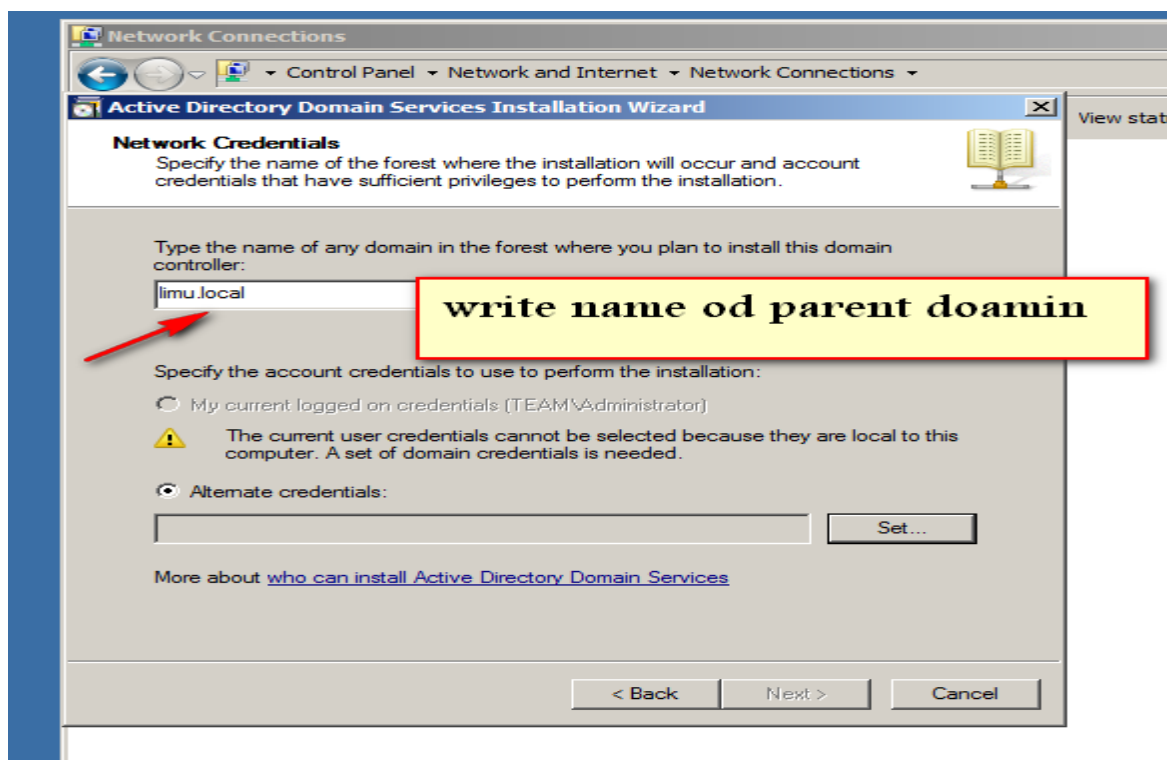
The Active Directory Domain Services Installation Wizard will start, either enable the checkbox beside Use Advanced mode installation and Click Next , or keep it unselected and click on Next



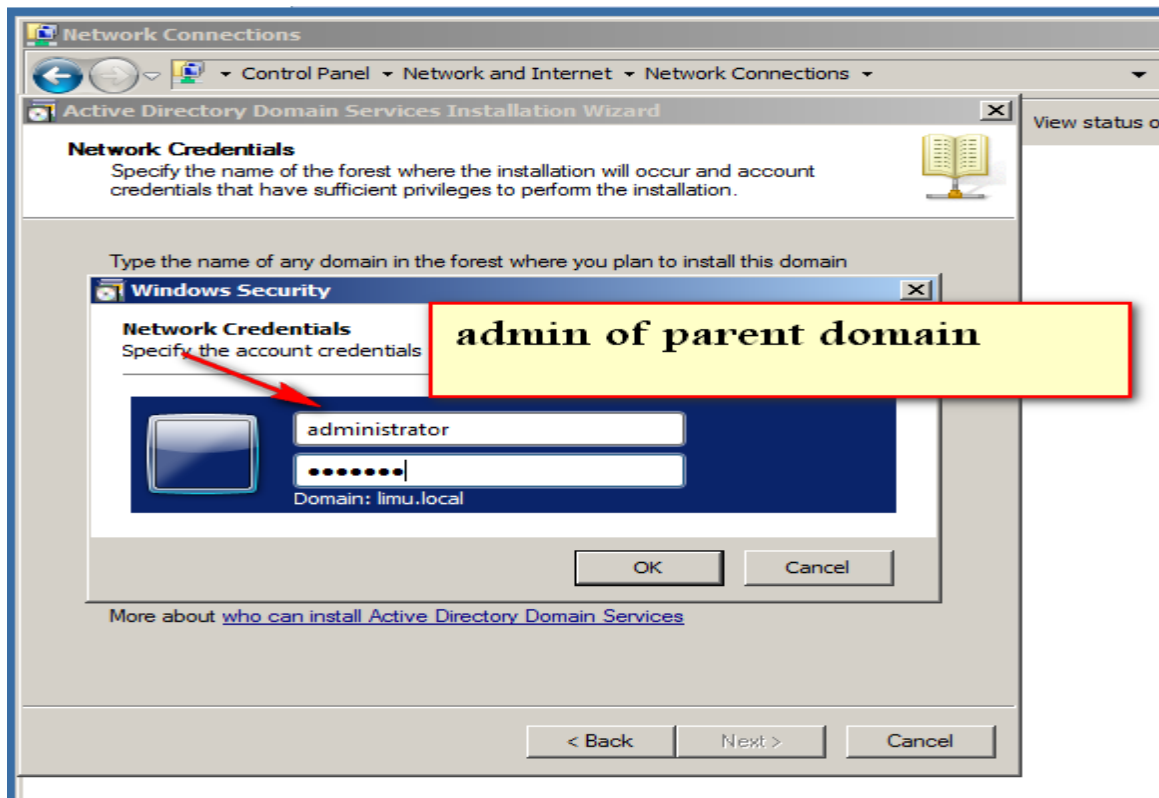
Choice create a new domain in existing forest



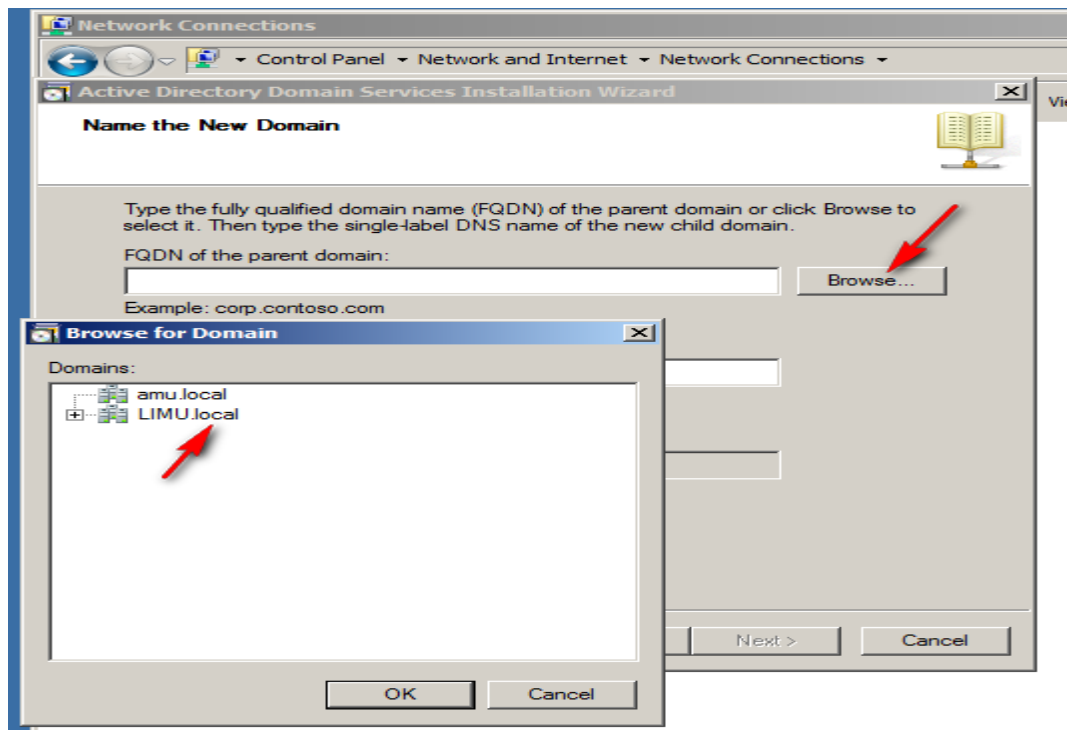
Write name of parent domain



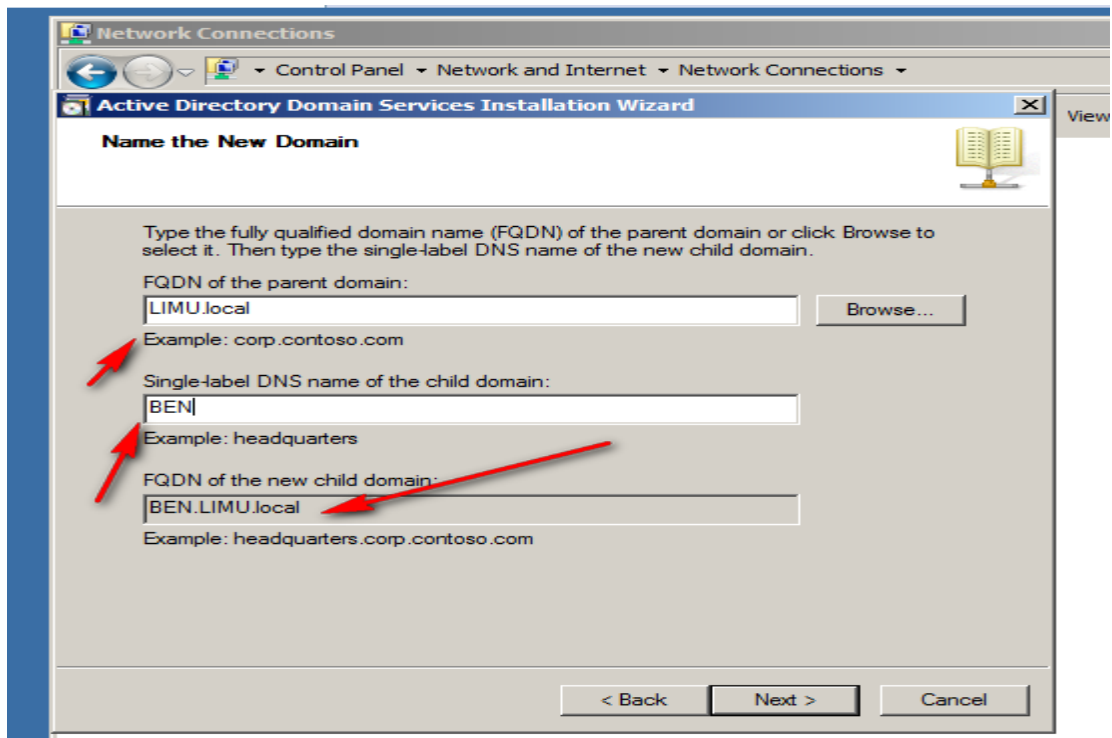
Click set then type enterprise admin of parent domain



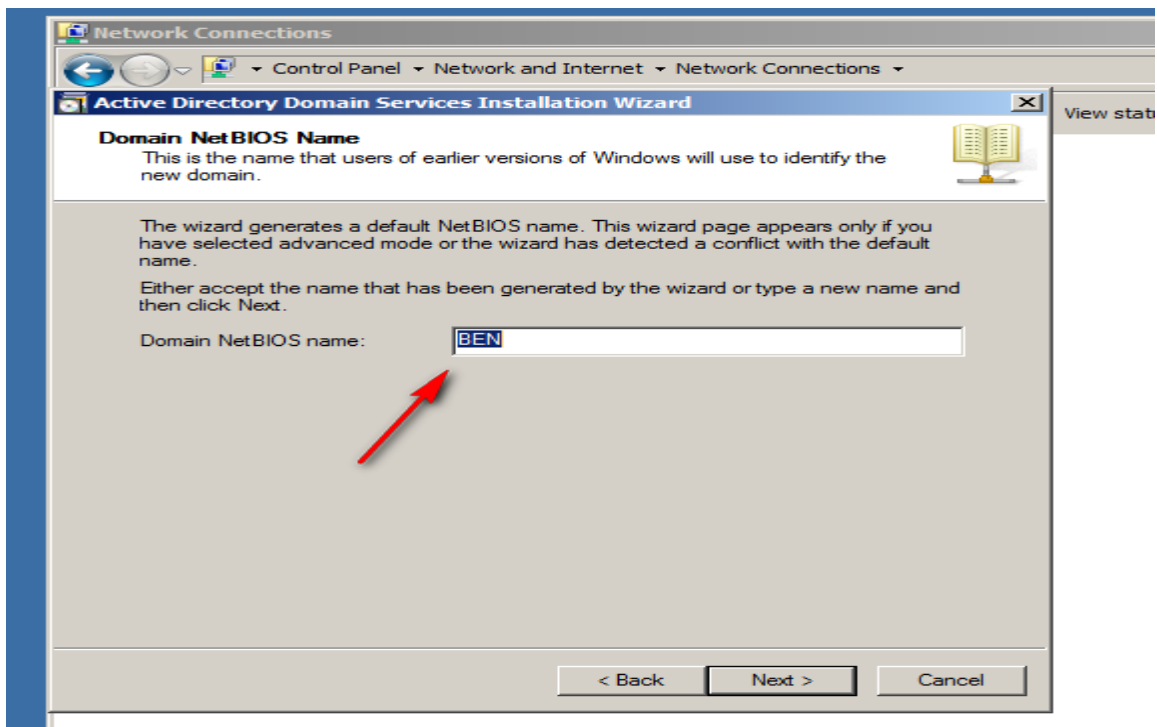
Browser then choice parent domain



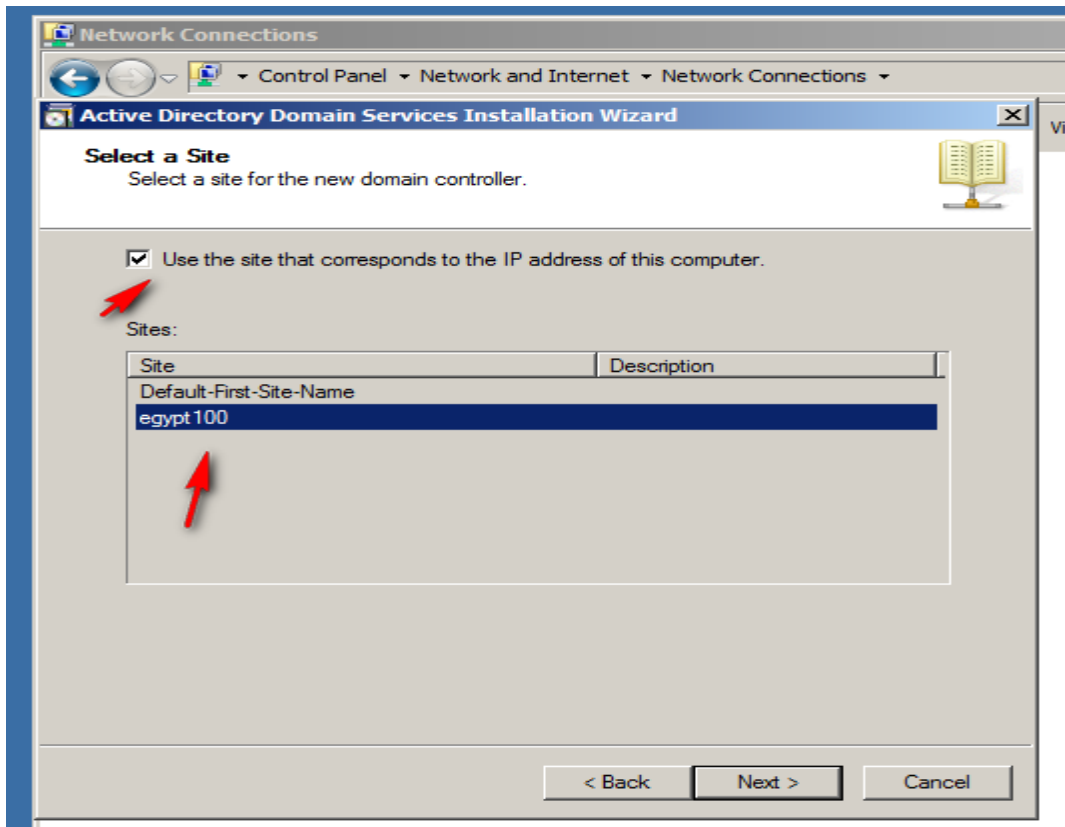
Type name of child domain



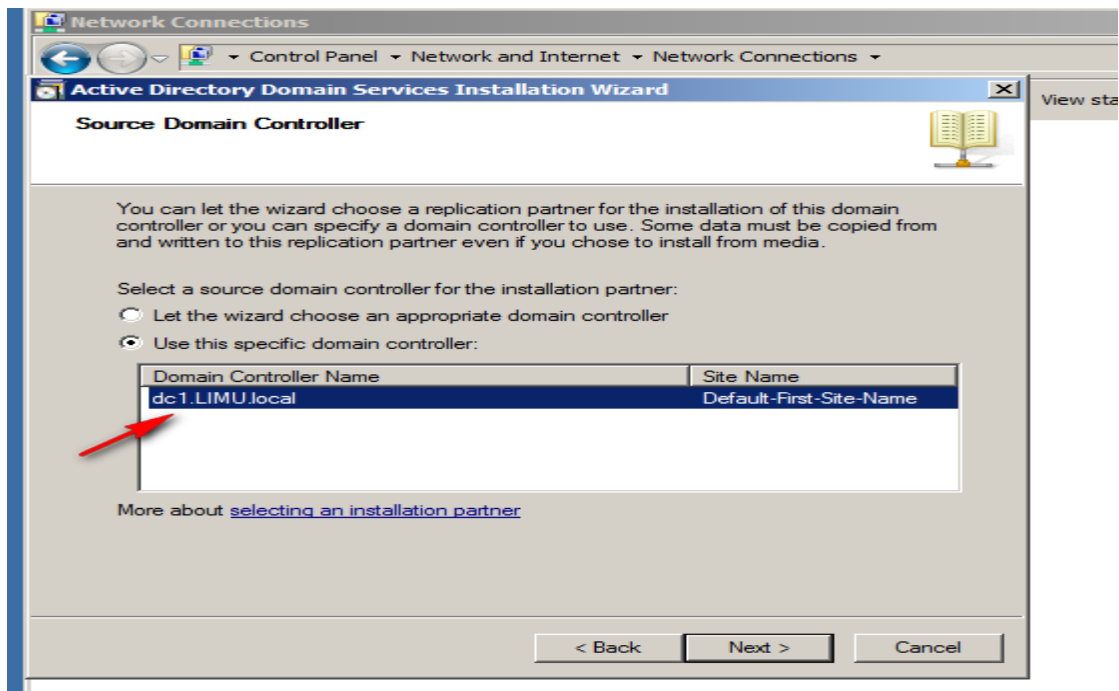
Domain Netbios name



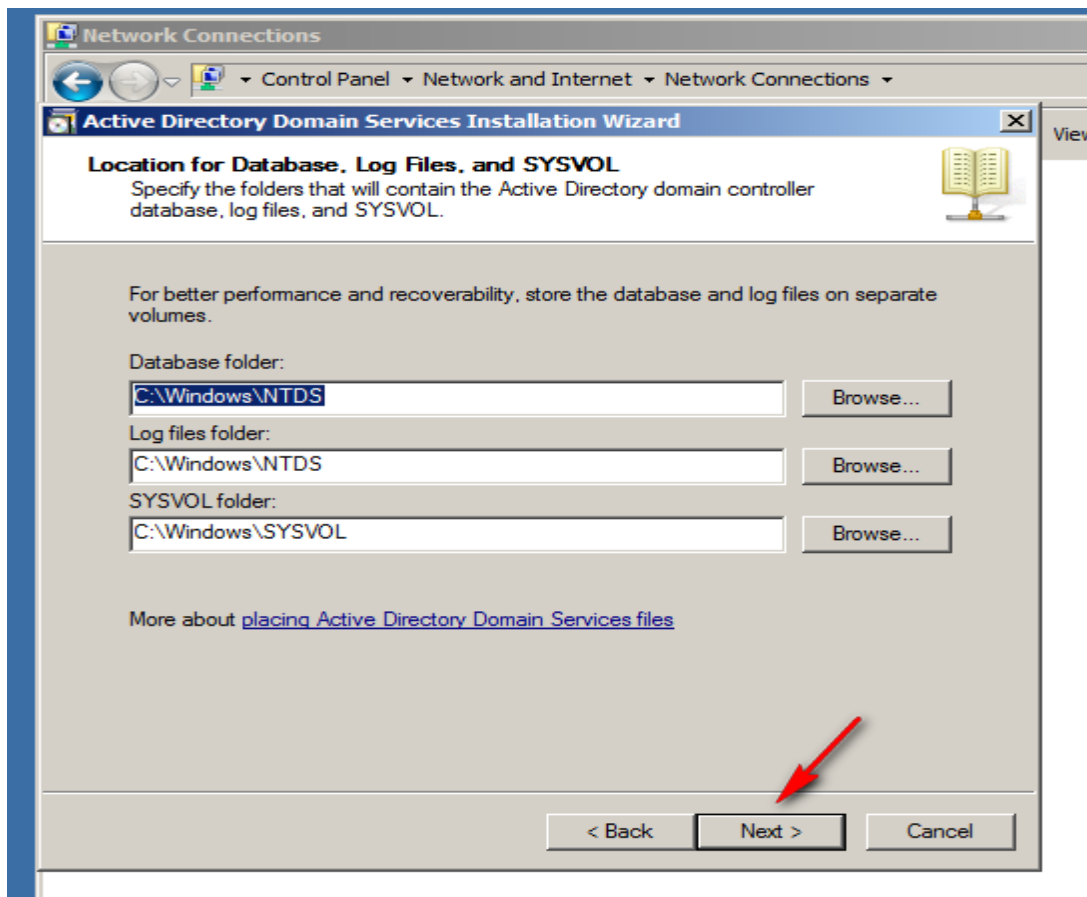
Select a site



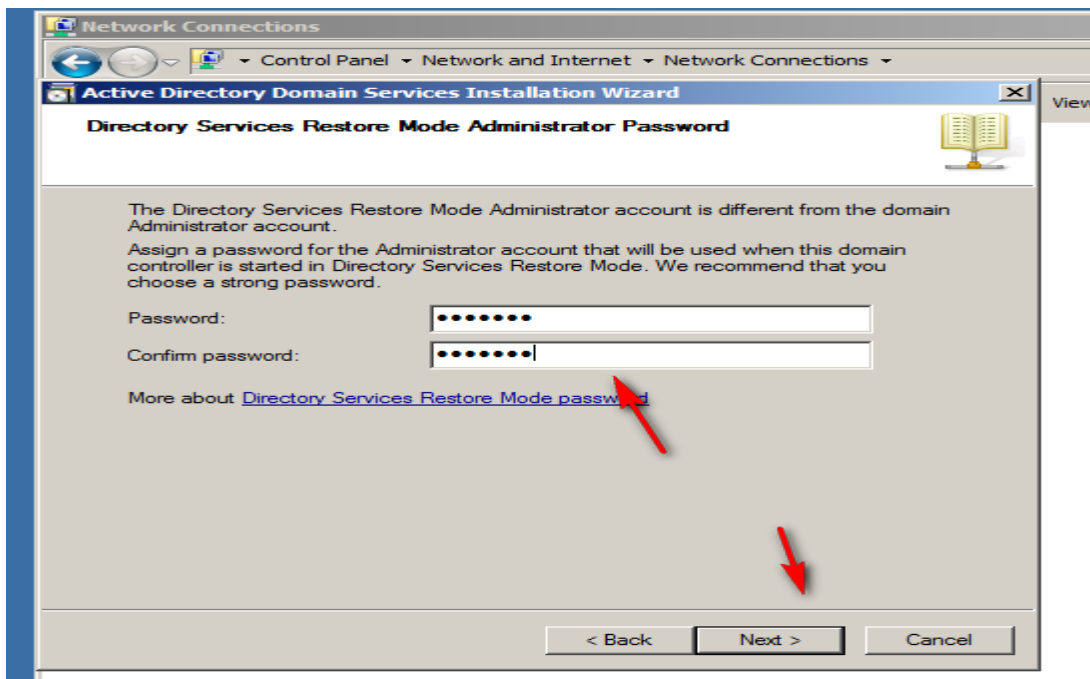
Source domain controller



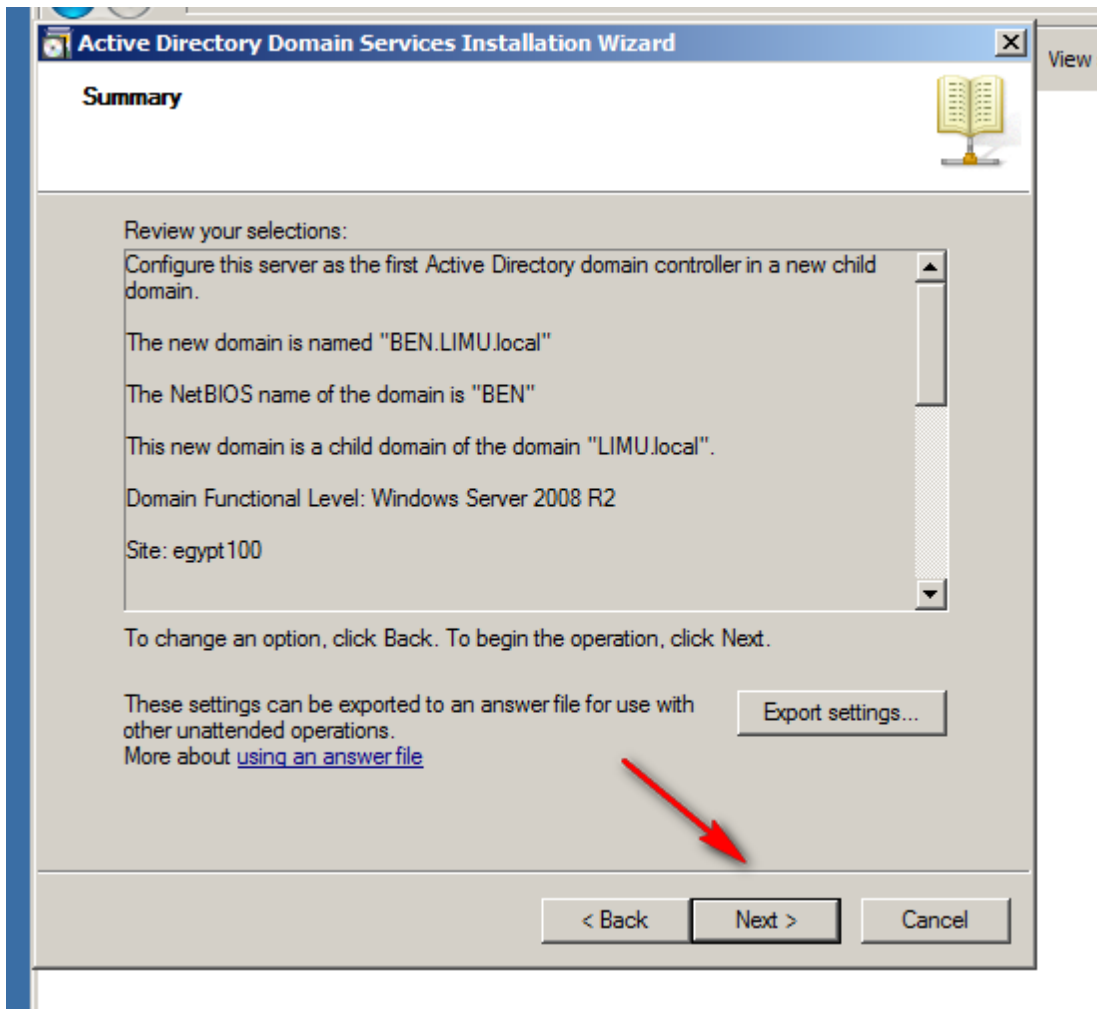
Log files and sysvol



Restore password



Summary

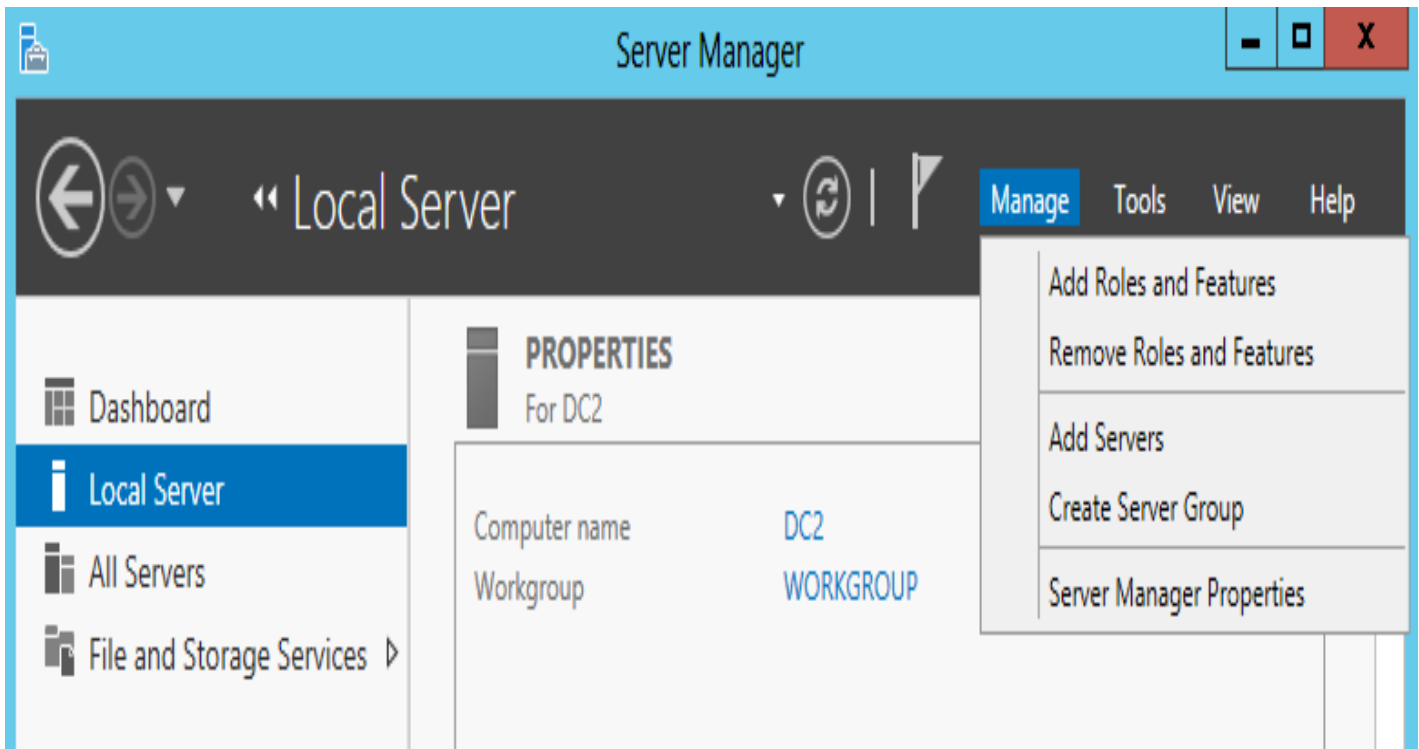


28.2- Child Domain in a windows Server 2012

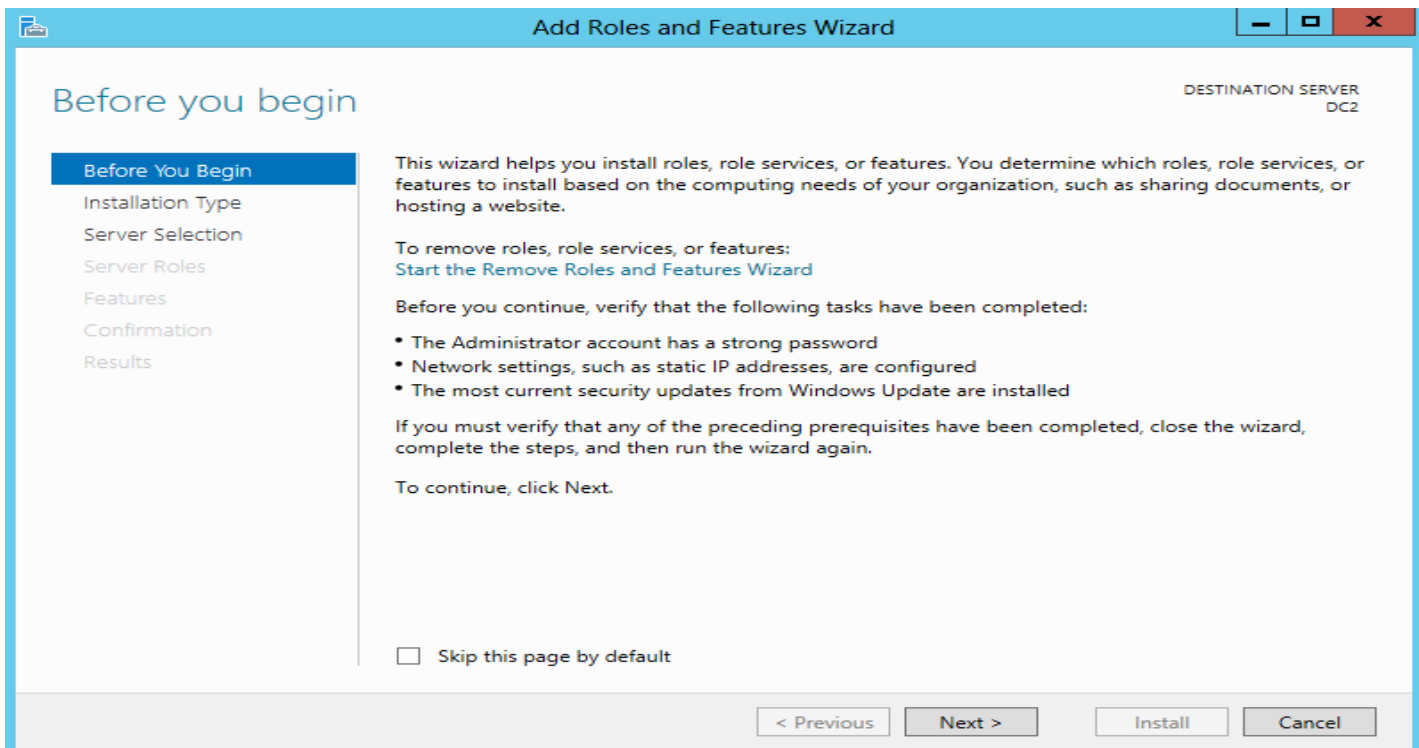
When you try and run DCPromo from the explorer shell on Windows Server 2012, you will receive the following message “The Active Directory Domain Services Installation Wizard is relocated in Server Manager. For more information.



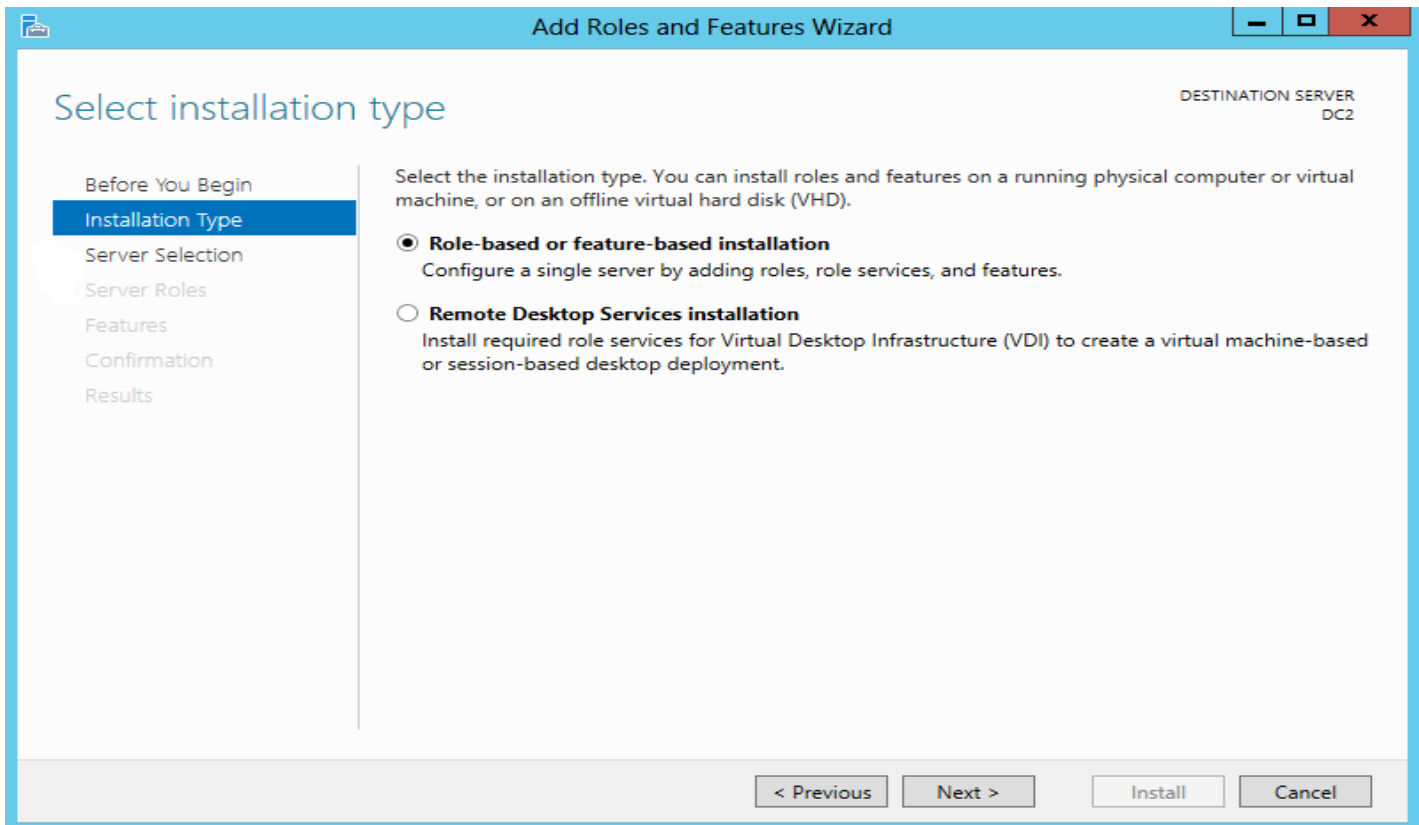
Add roles and features



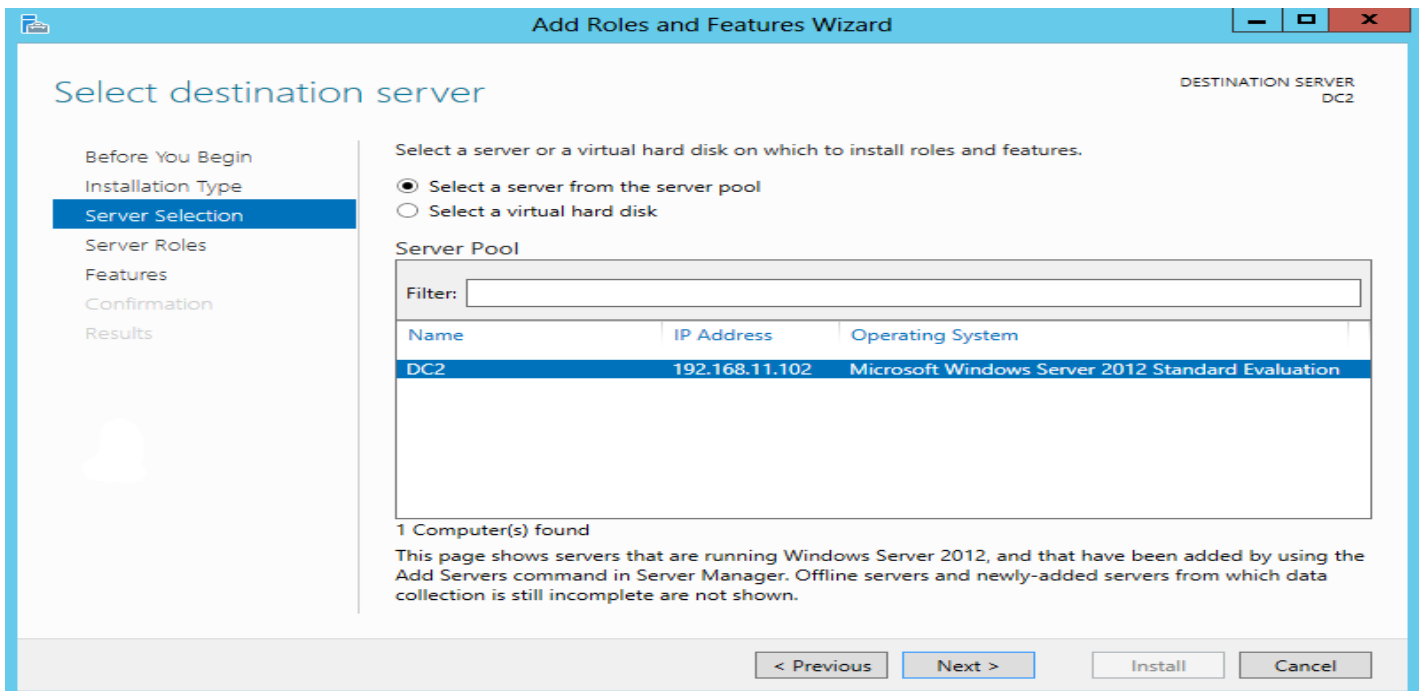
Add roles and features.



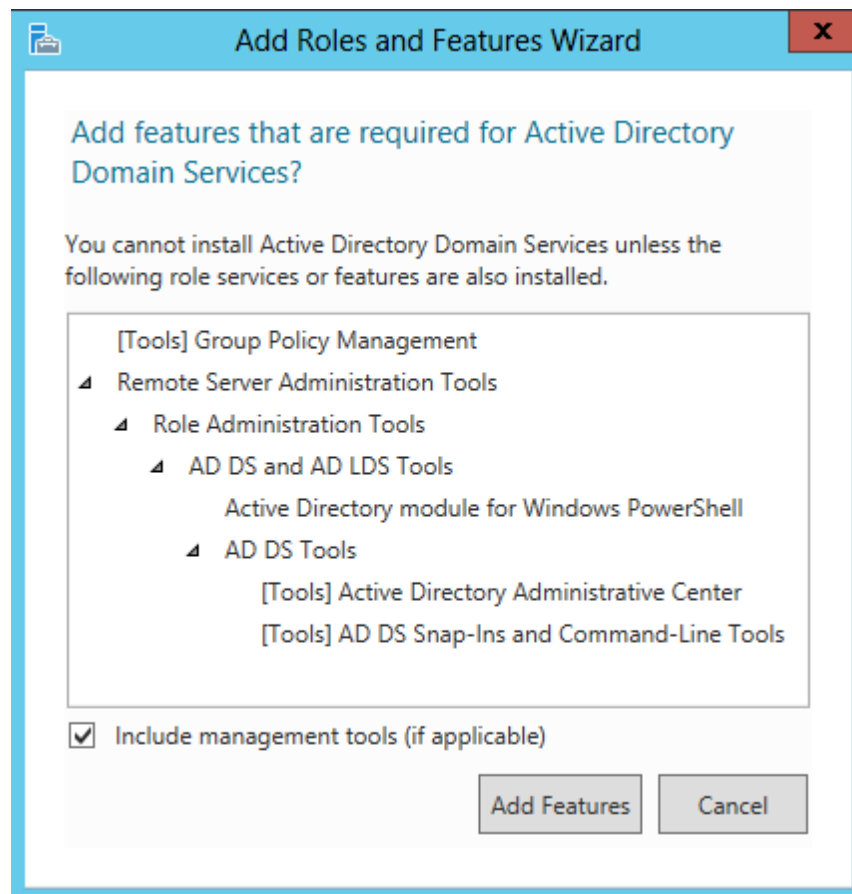
Select first option



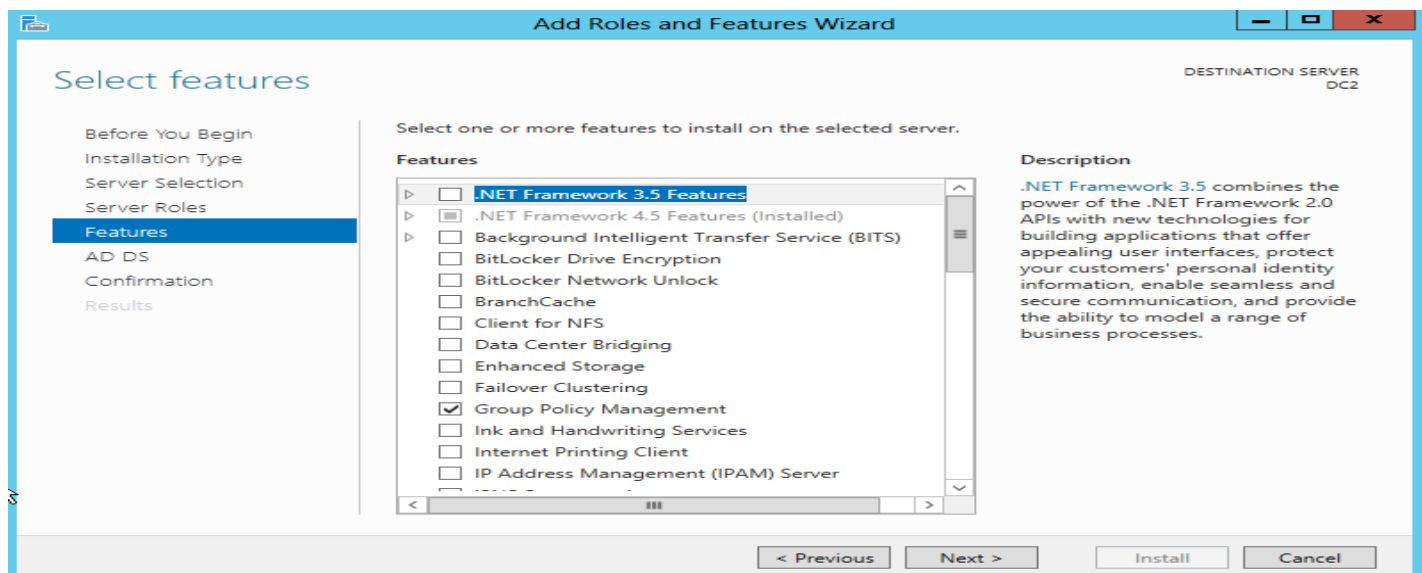
Select the server you wish to promote



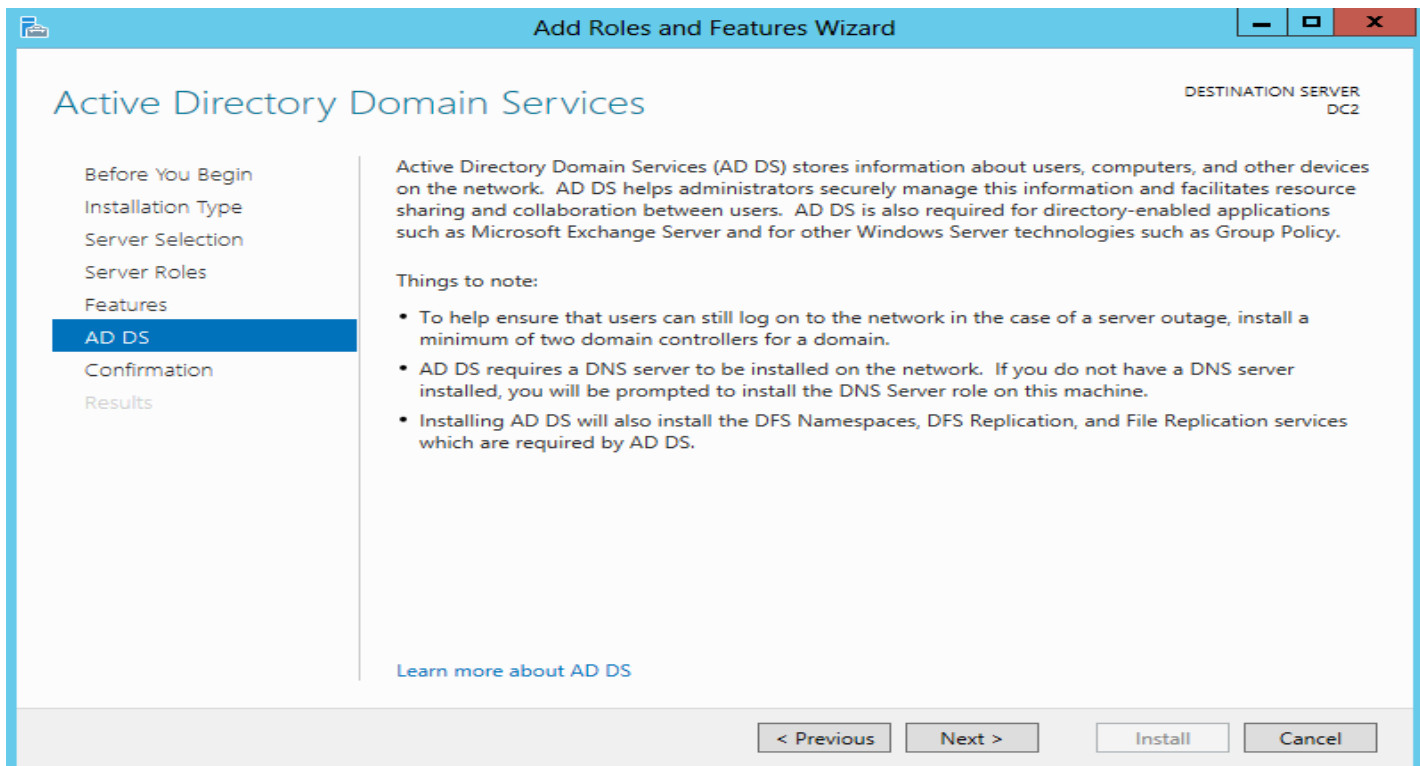
Click Add Features.



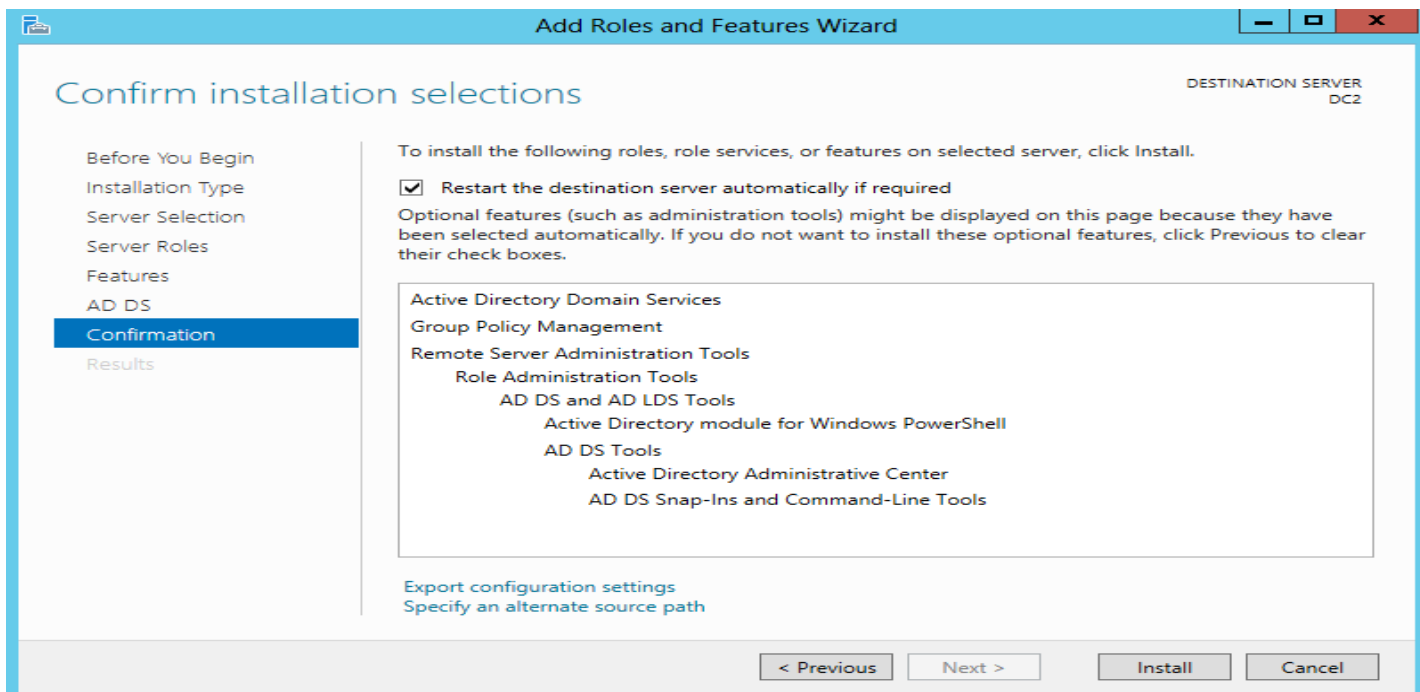
Add features



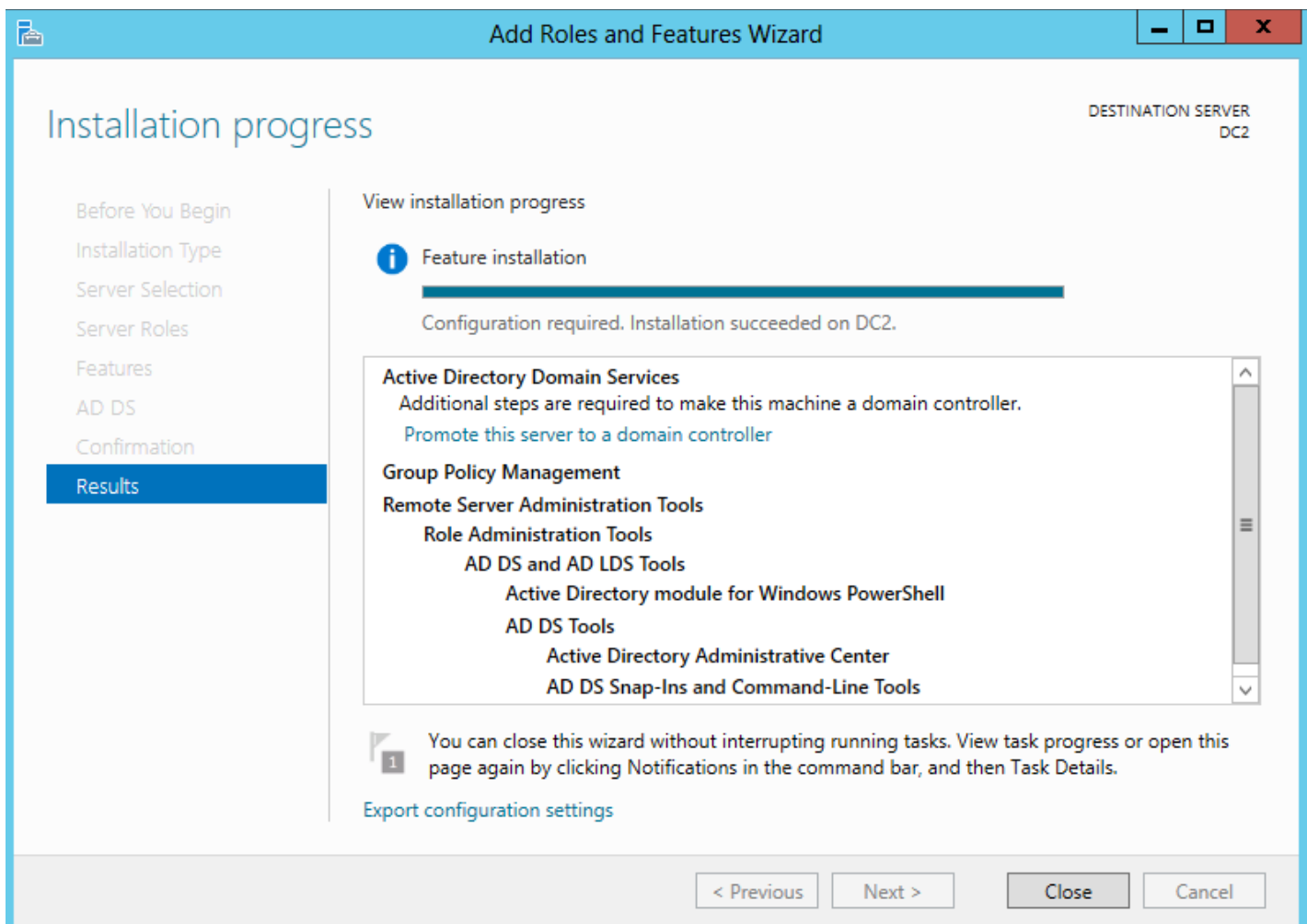
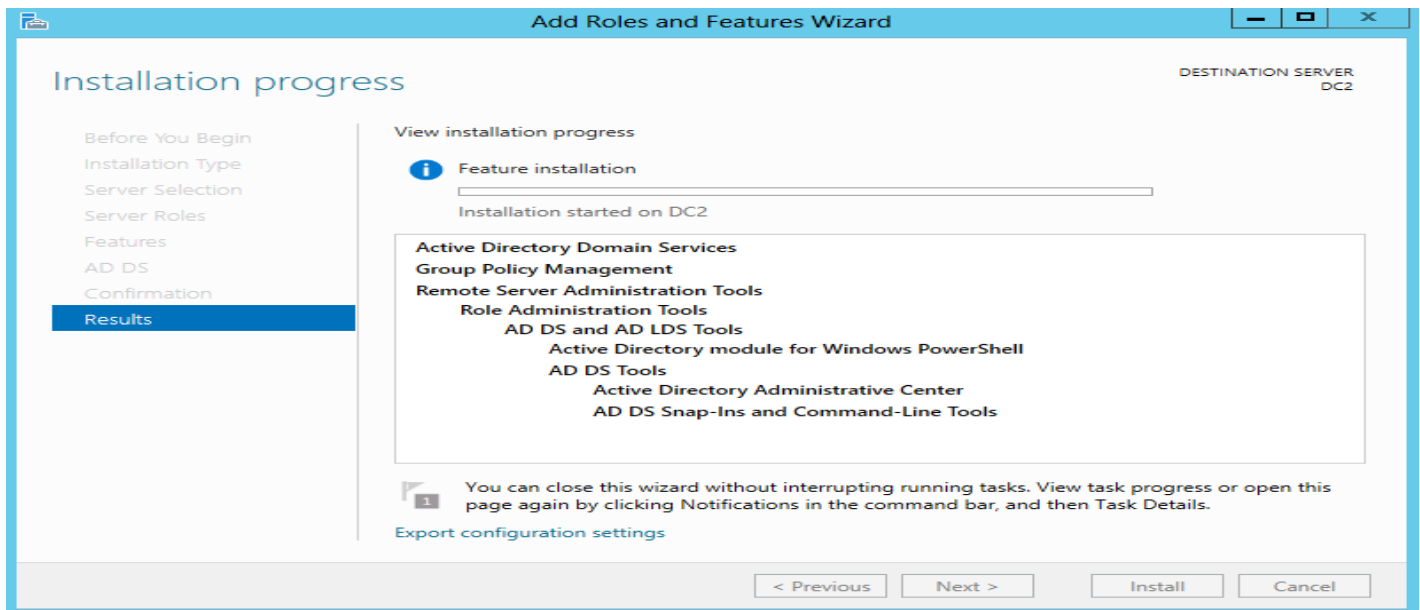
AD DS



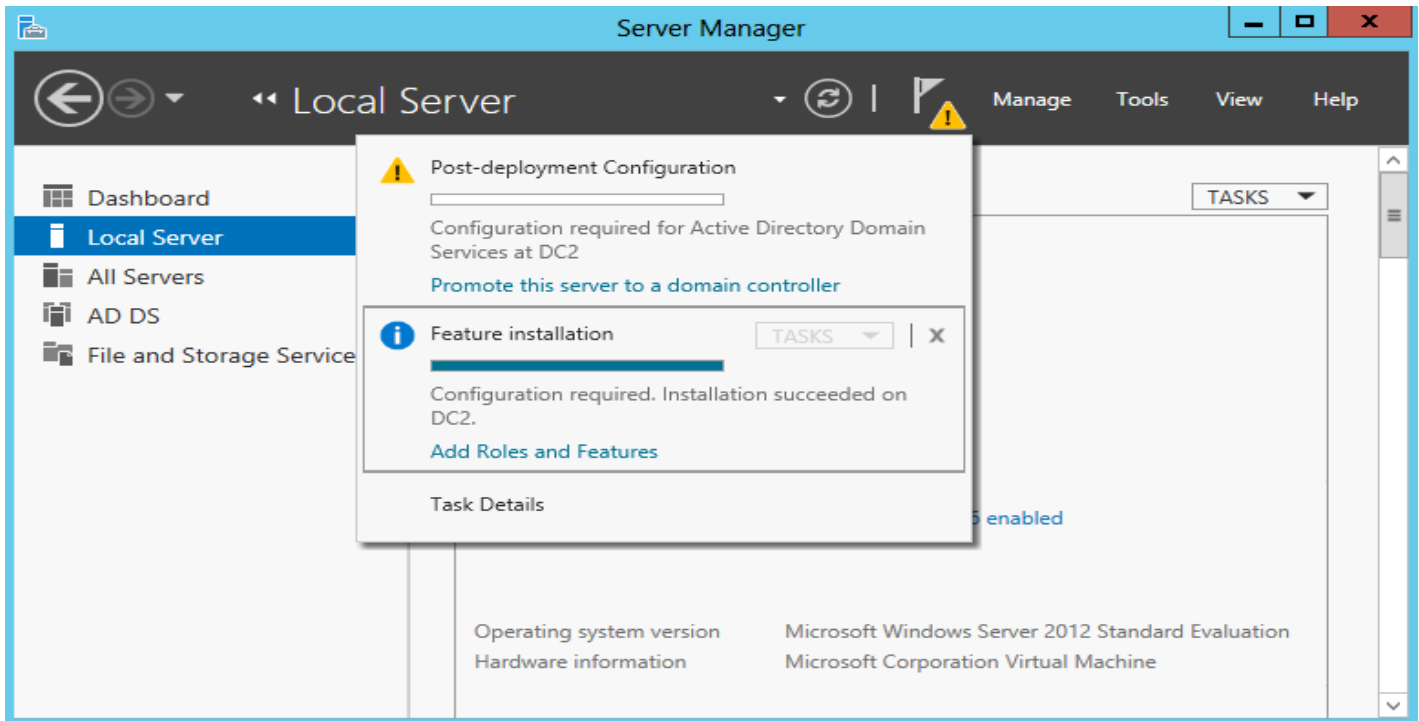
Confirmation



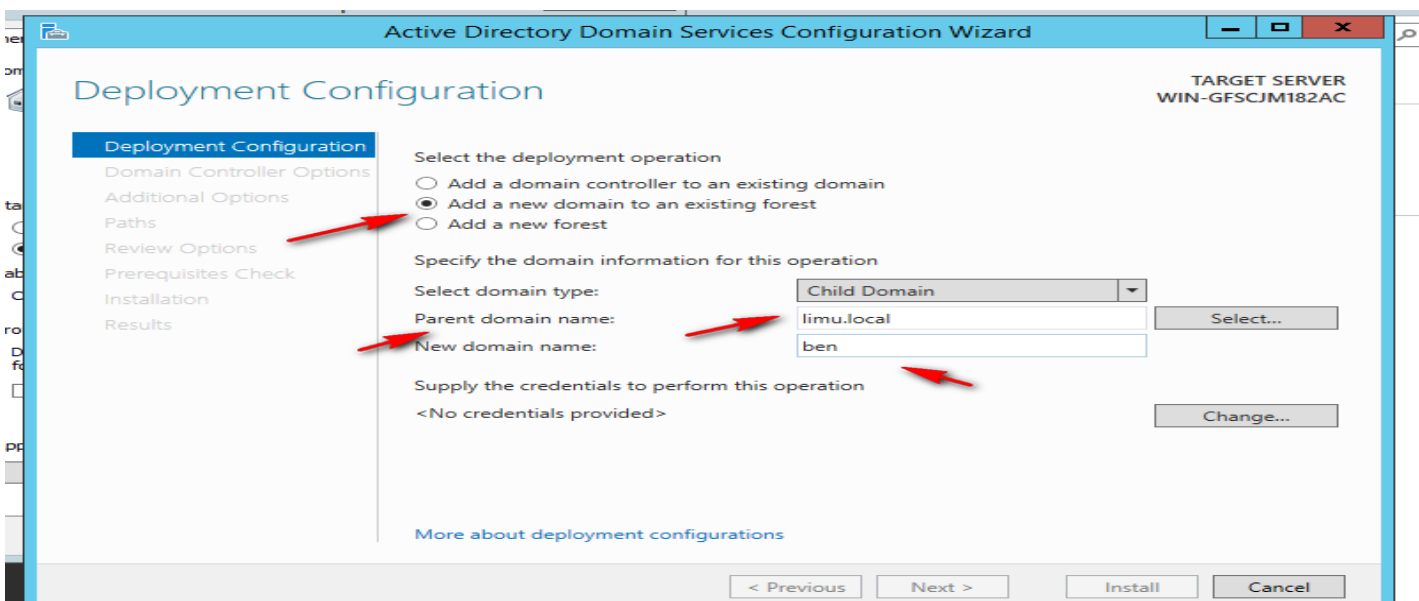
Results



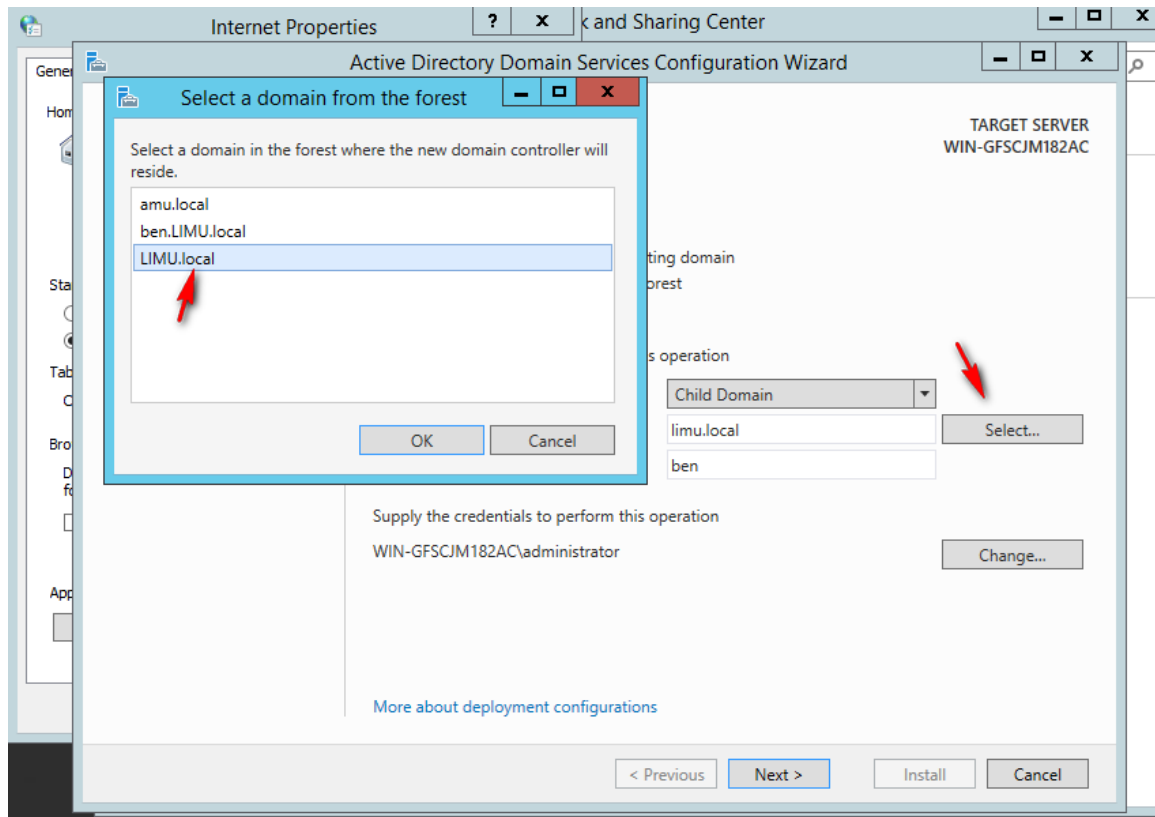
You'll now notice you have a notification, prompting you to promote this server to a domain controller.



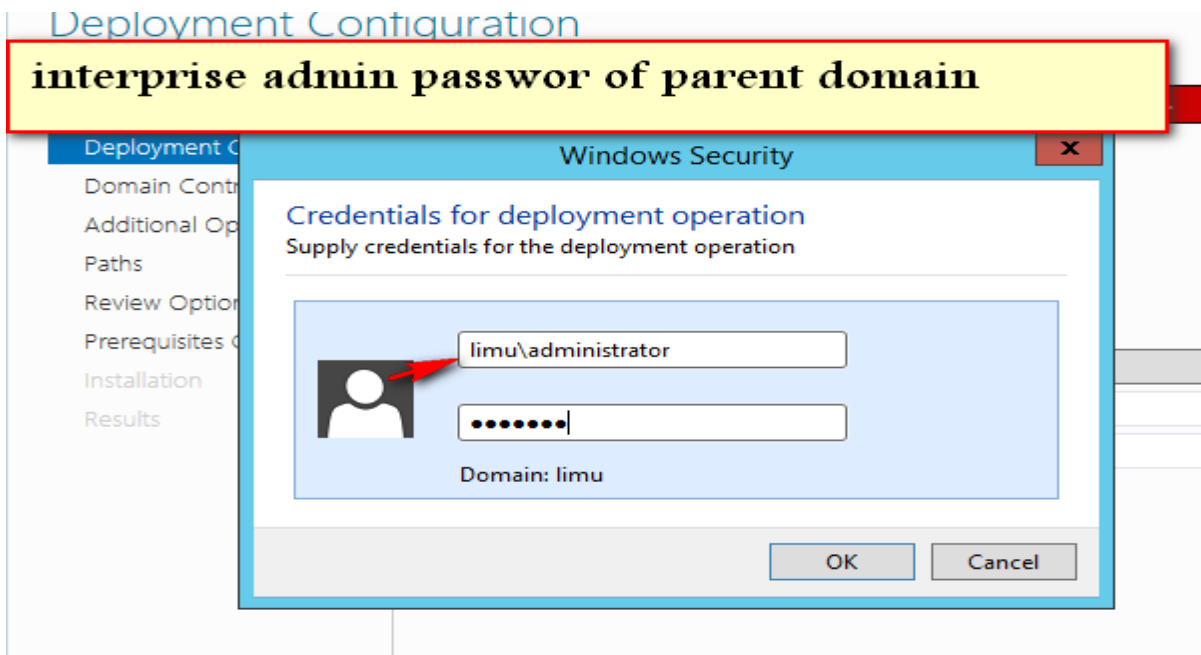
Add a new domain to an existing domain



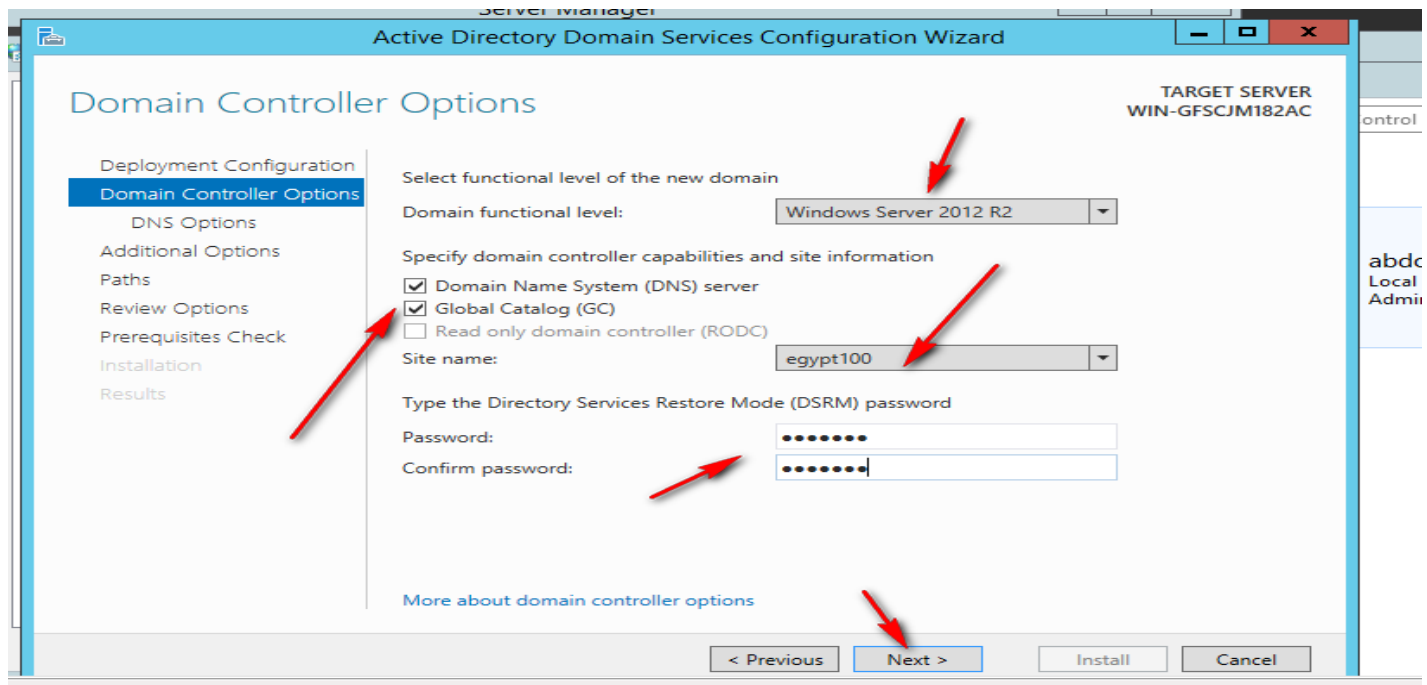
Select parent domain



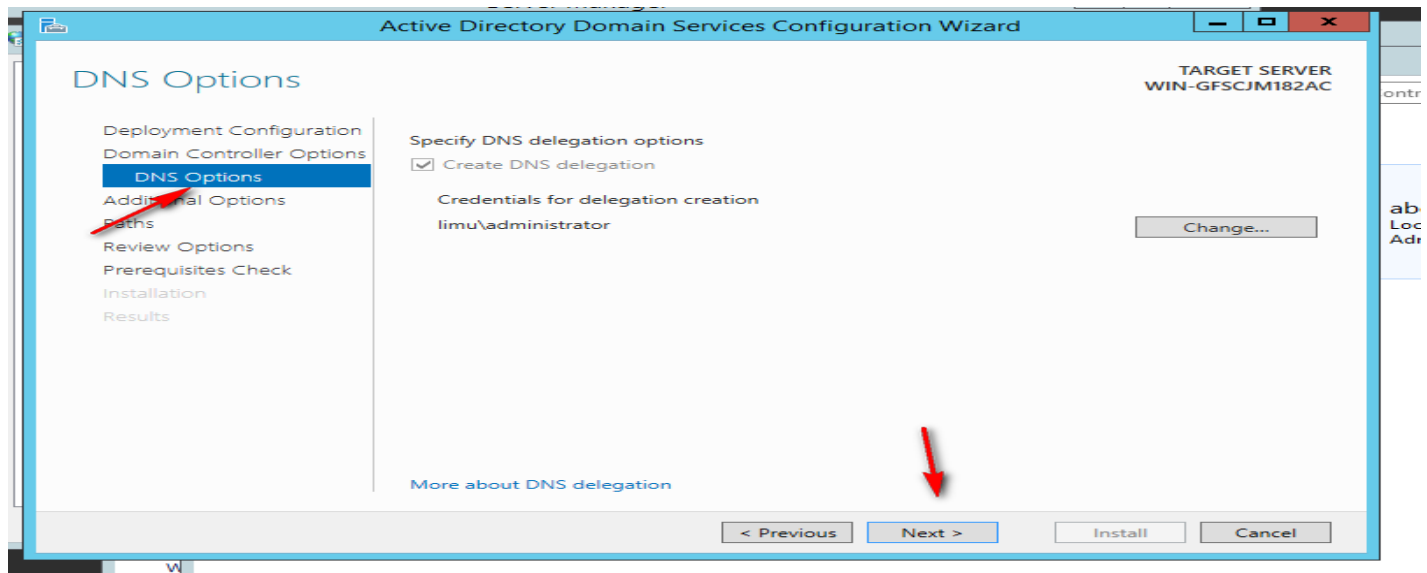
Type Enterprise password for admin



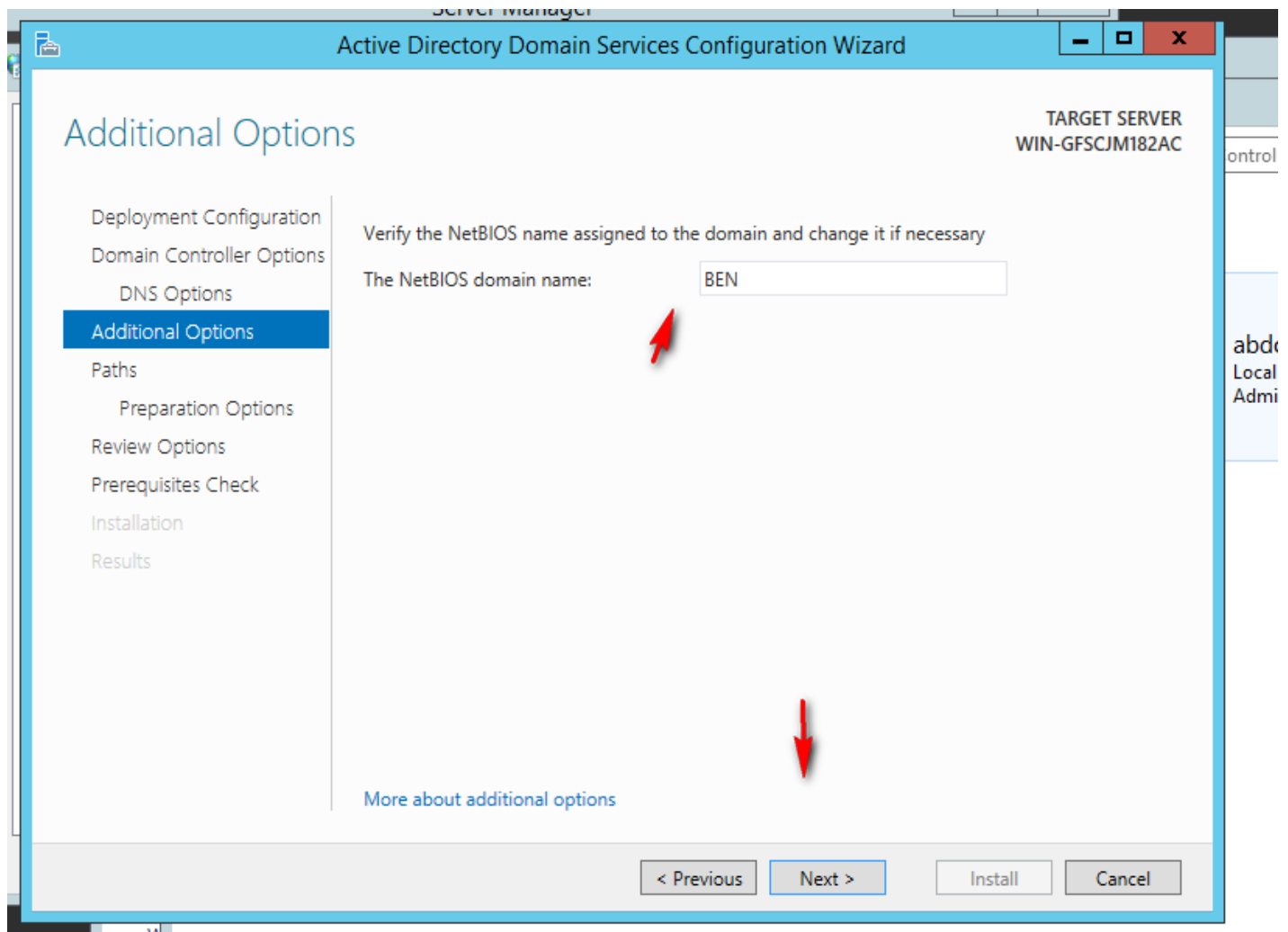
Choice the following then next



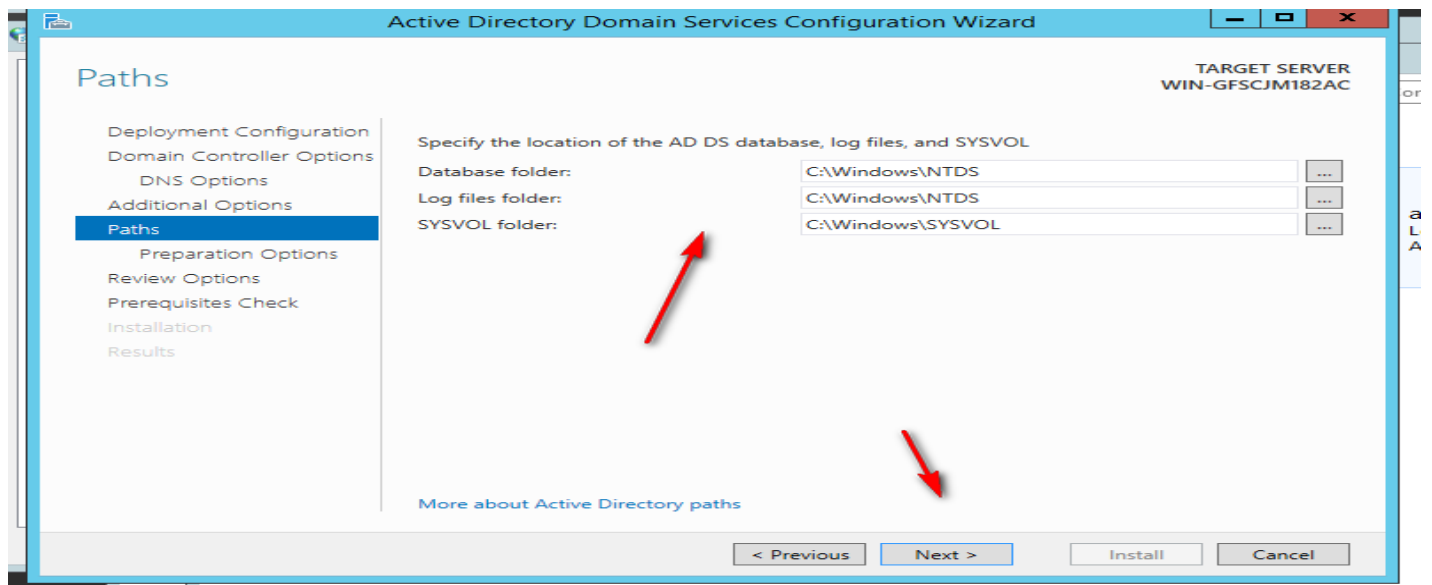
Next



Netbios domain name



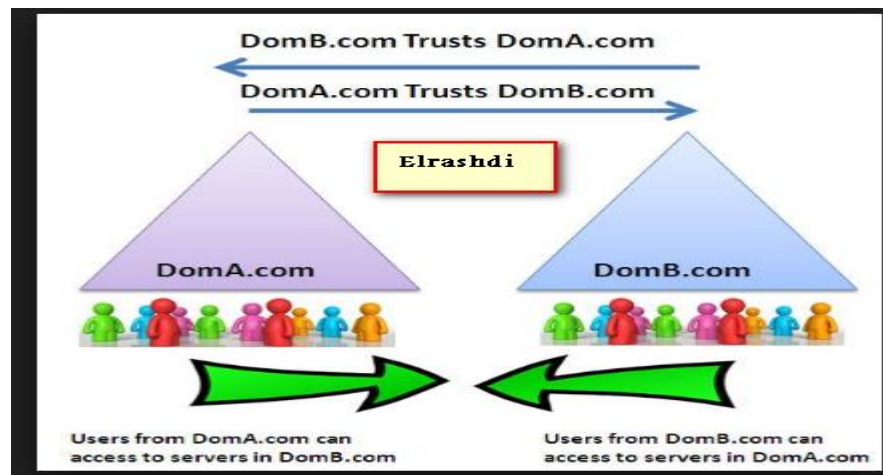
Next then finish



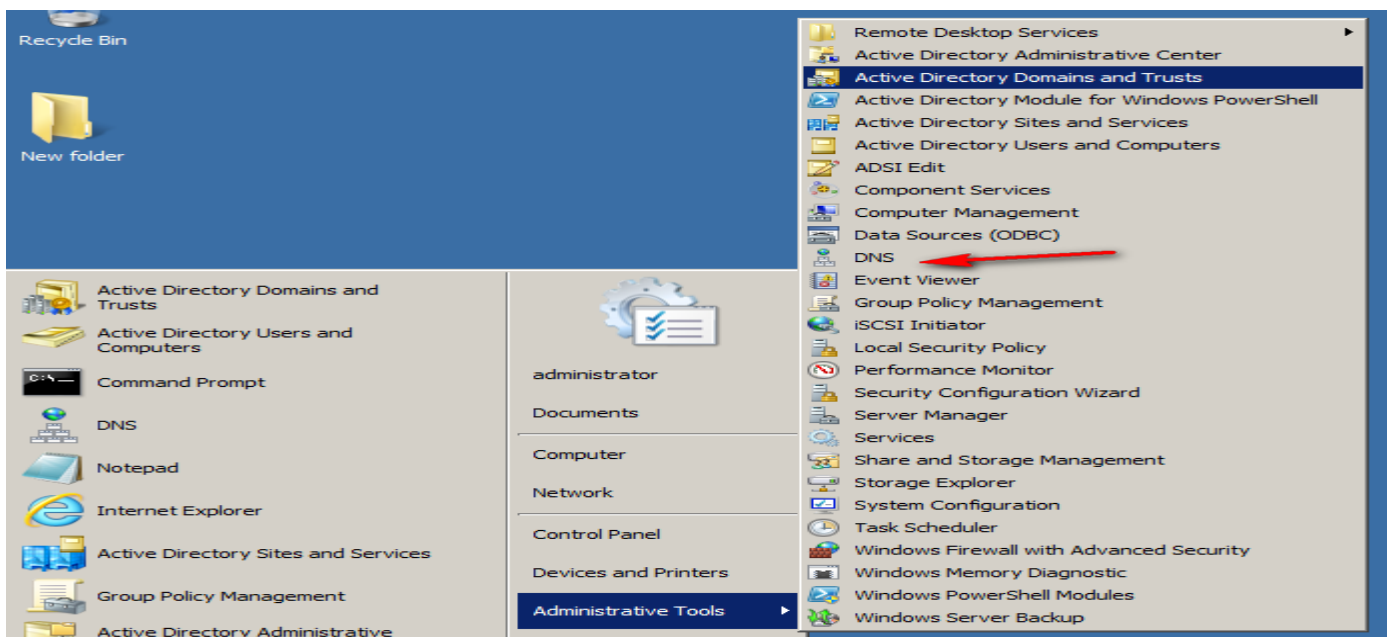
29-Trust between domains

أحيانا يكون عندنا أكثر من مجال في forests مختلفة ونريد ان يكون هناك علاقة ثقة وتوثيقية بين هذه المجالات المختلفة بحيث يتم تبادل البيانات والمعلومات بشكل سلسل وبدون أي تعقيدات .

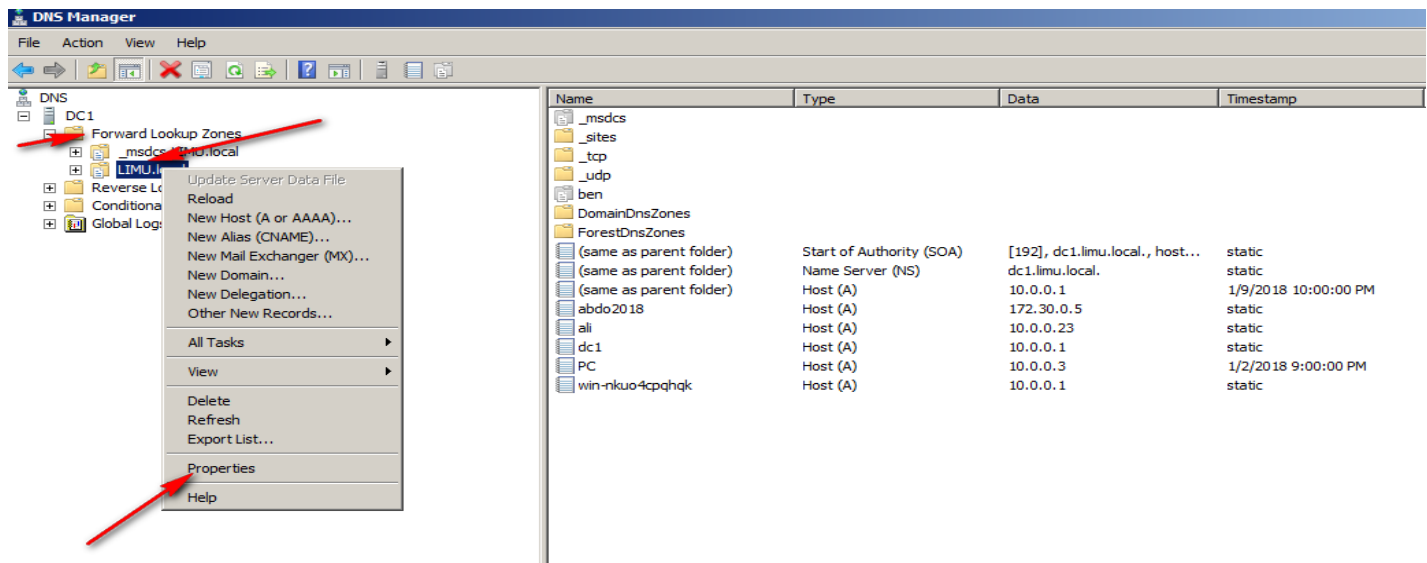
You can link two disjointed Active Directory Domain Services (AD DS) forests together to form a one-way or two-way, transitive trust relationship. You can use a two-way, forest trust to form a transitive trust relationship between every domain in both forests.



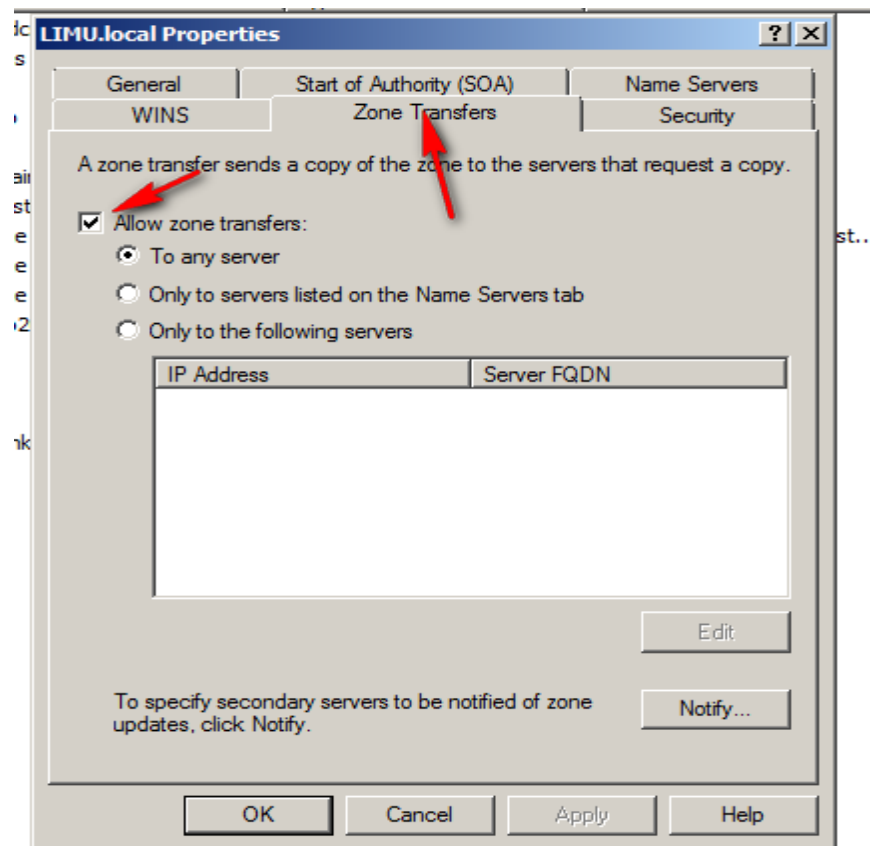
First open DNS



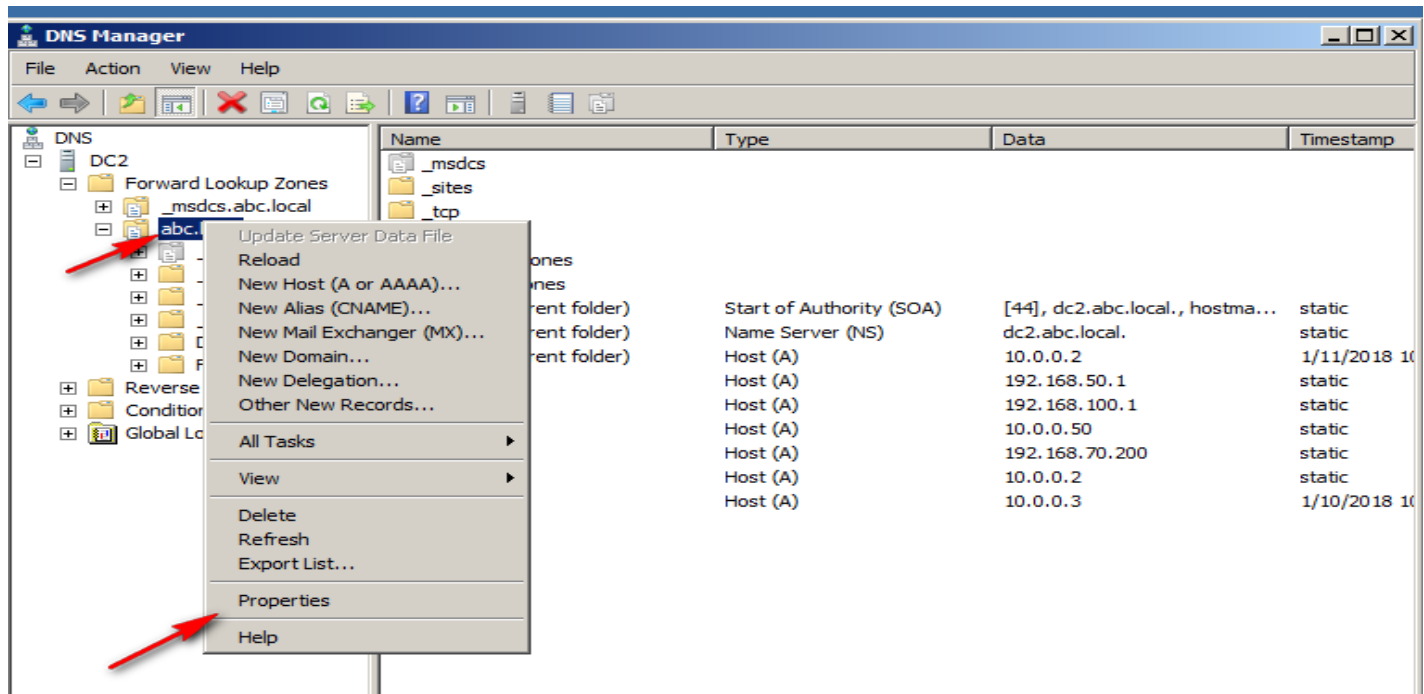
First on domain controller of limu domain Open forward lookup zones the properties of limu.local



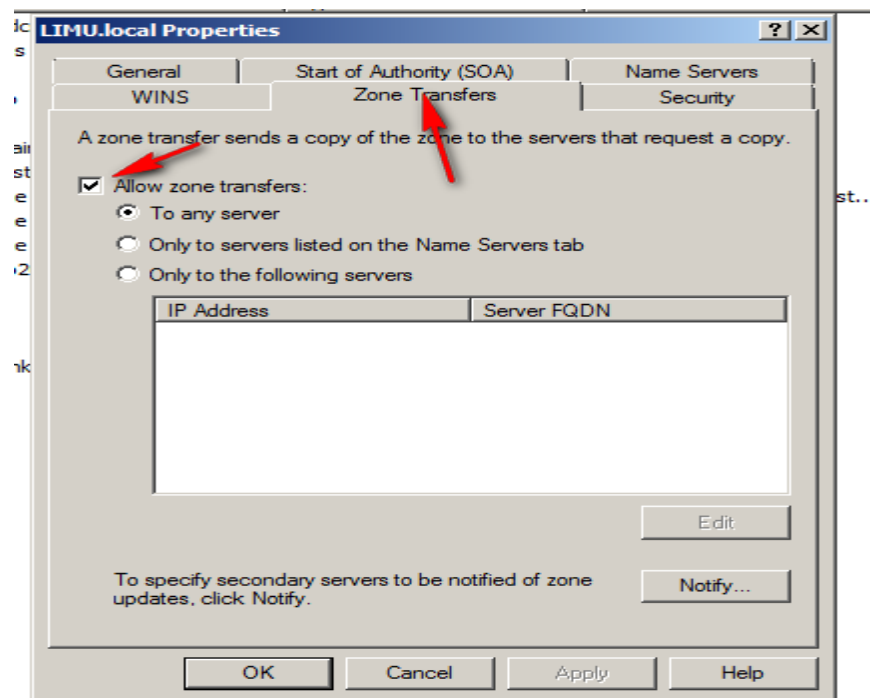
Zone transfers then allow zone transfers



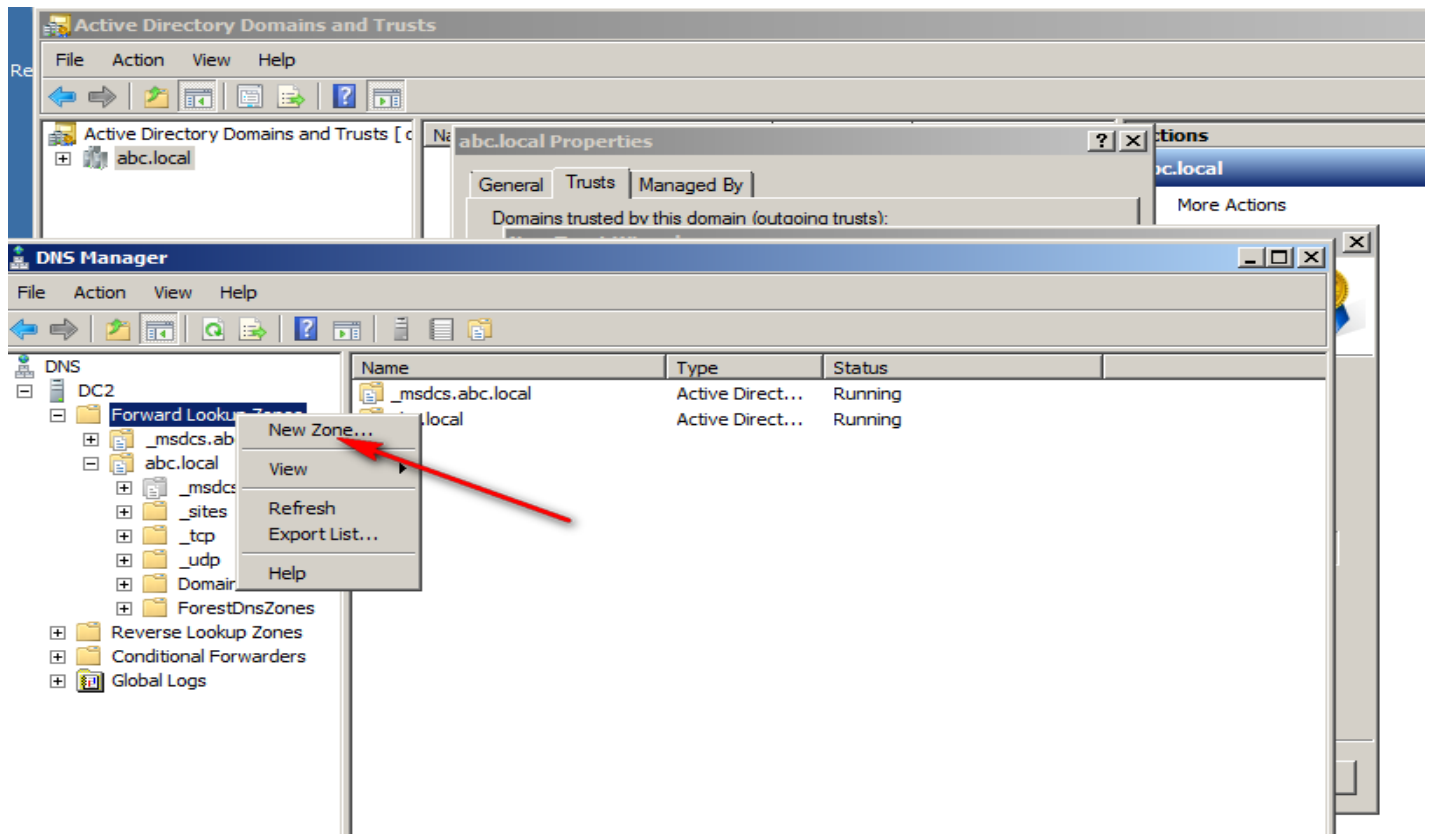
Second on domain controller of ABC domain Open forward lookup zones the properties of abc.local



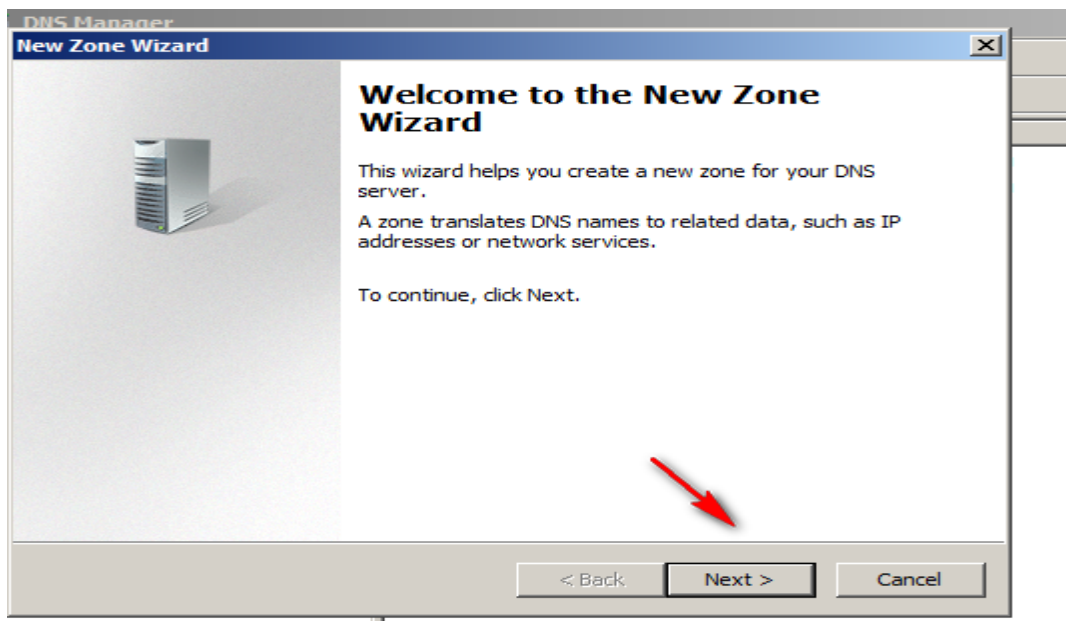
Zone transfers then allow zone transfers



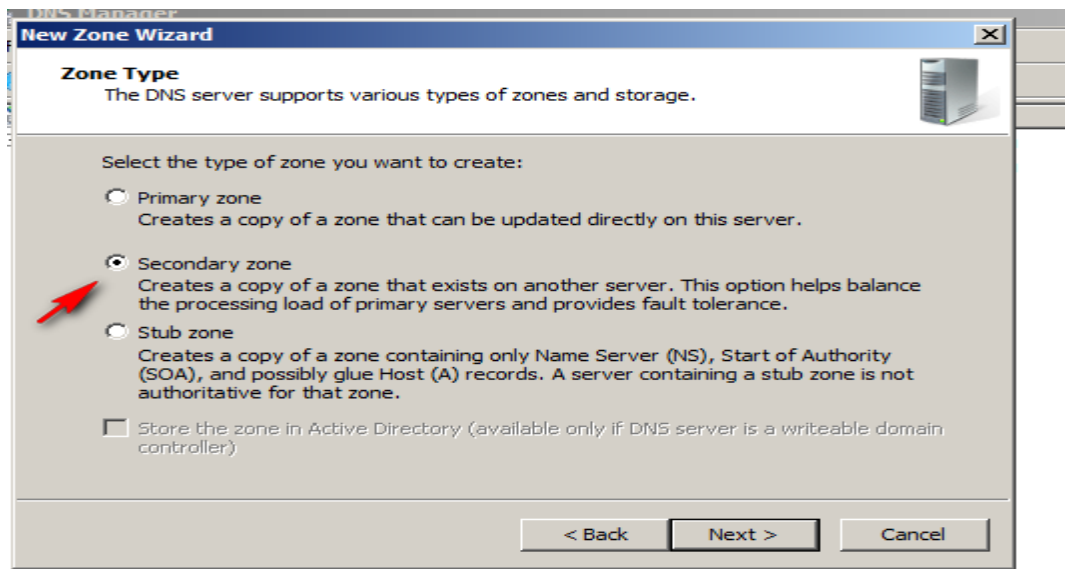
On abc domain Open the DNS then new zone



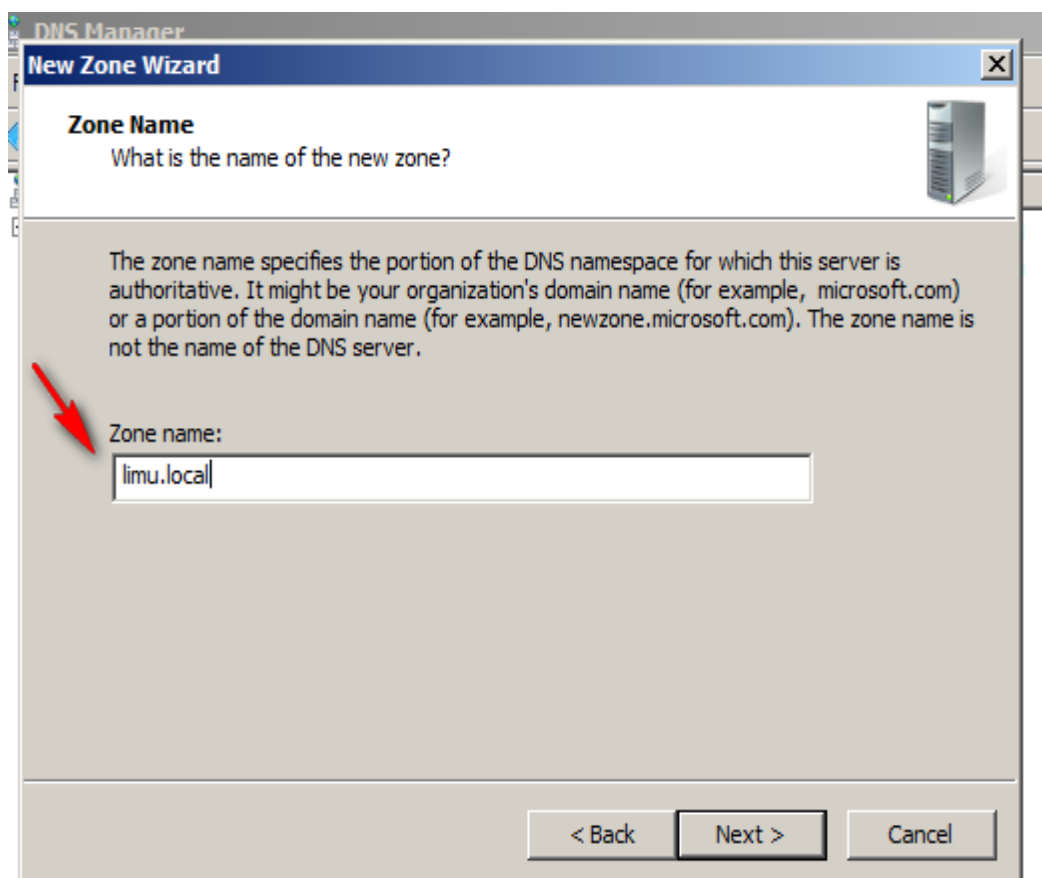
Next



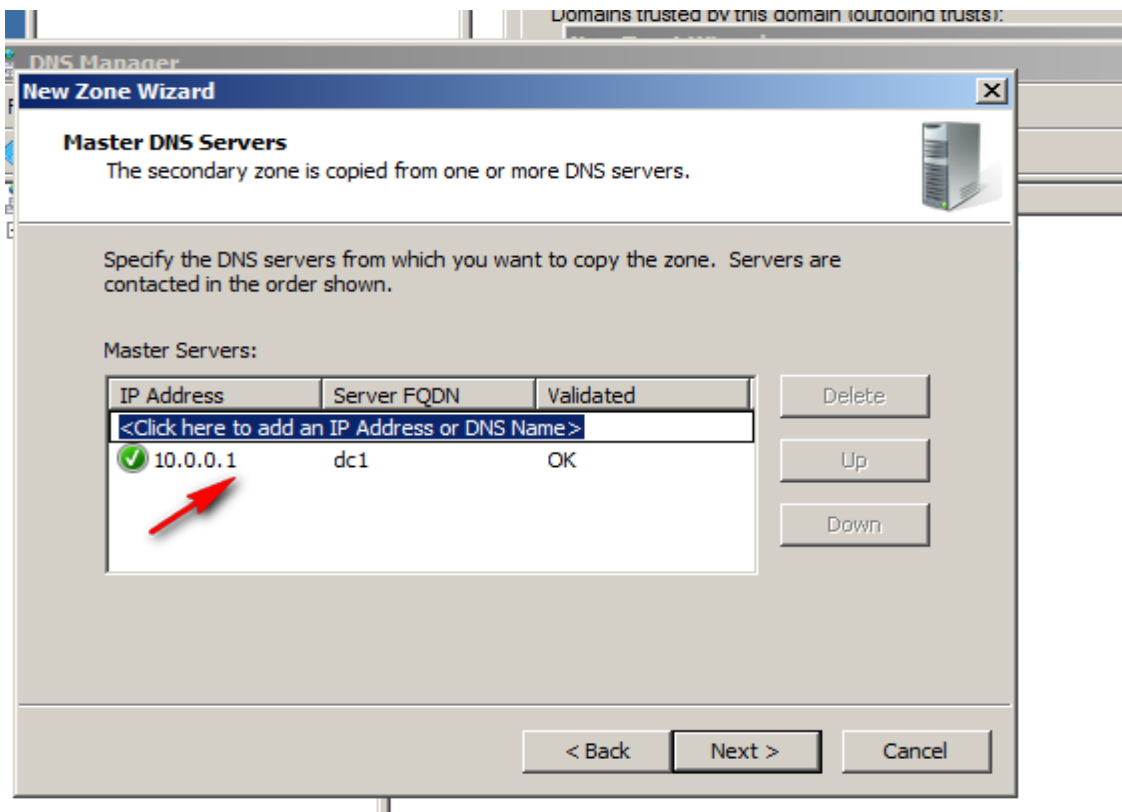
Secondary zone



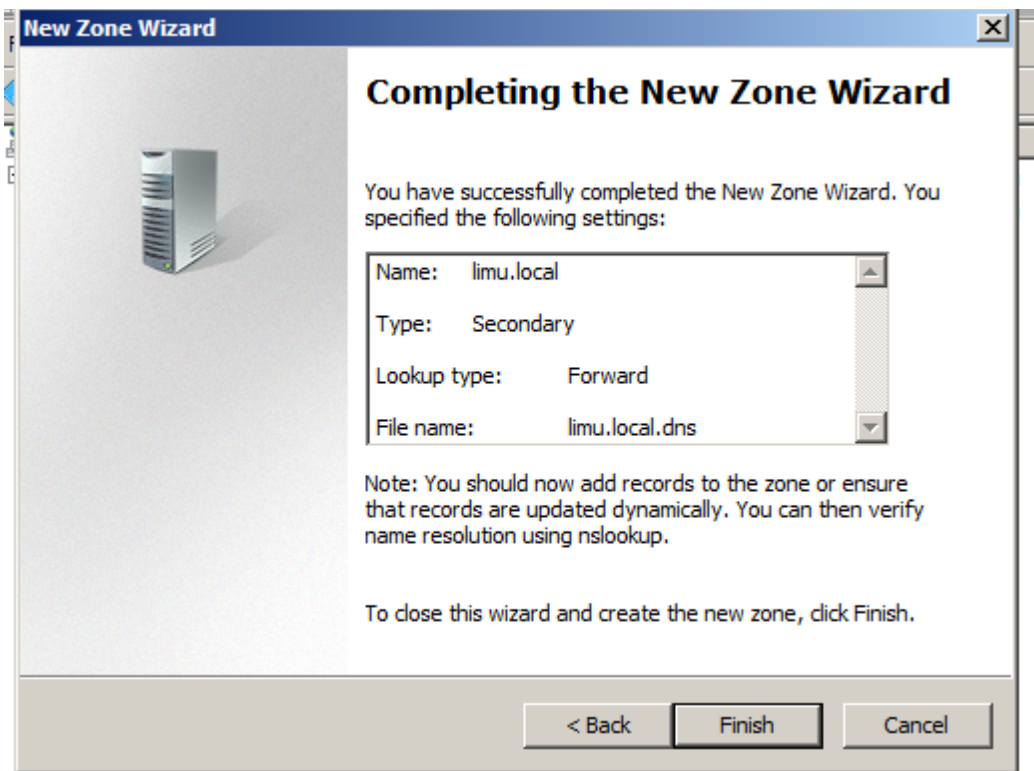
Type name of primer zone in another domain



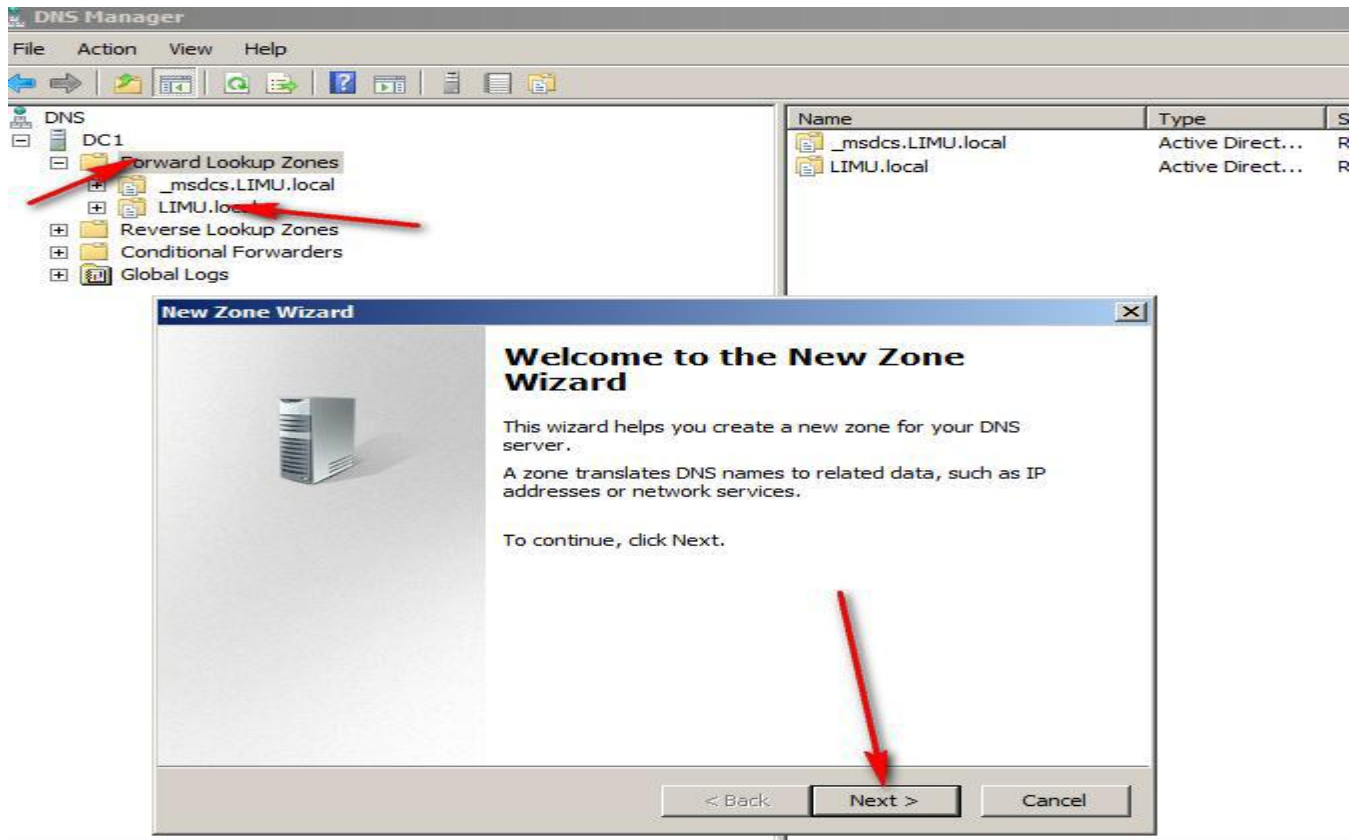
Ip address of another domain



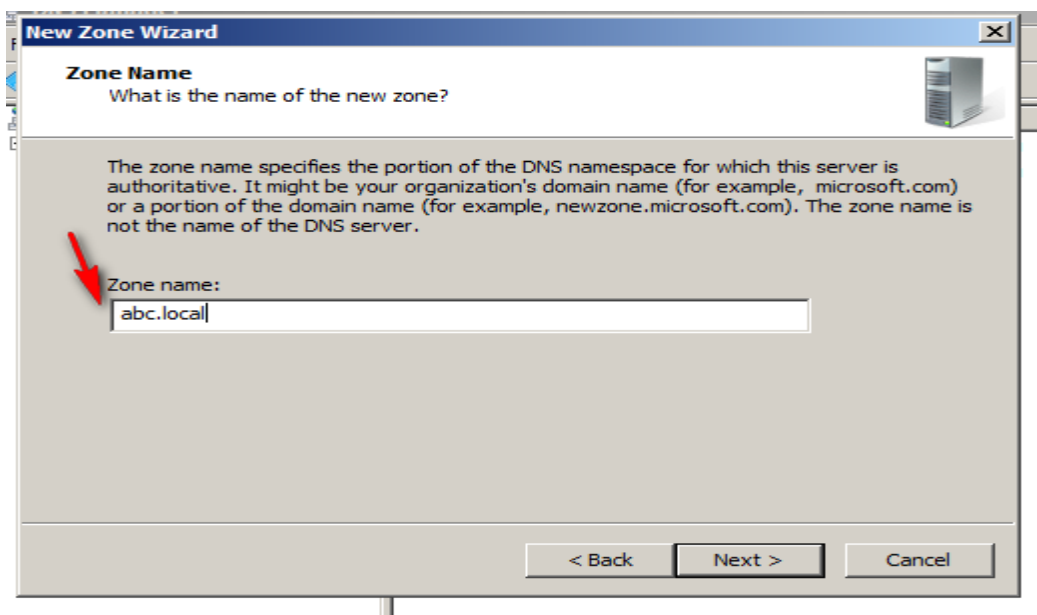
Finish



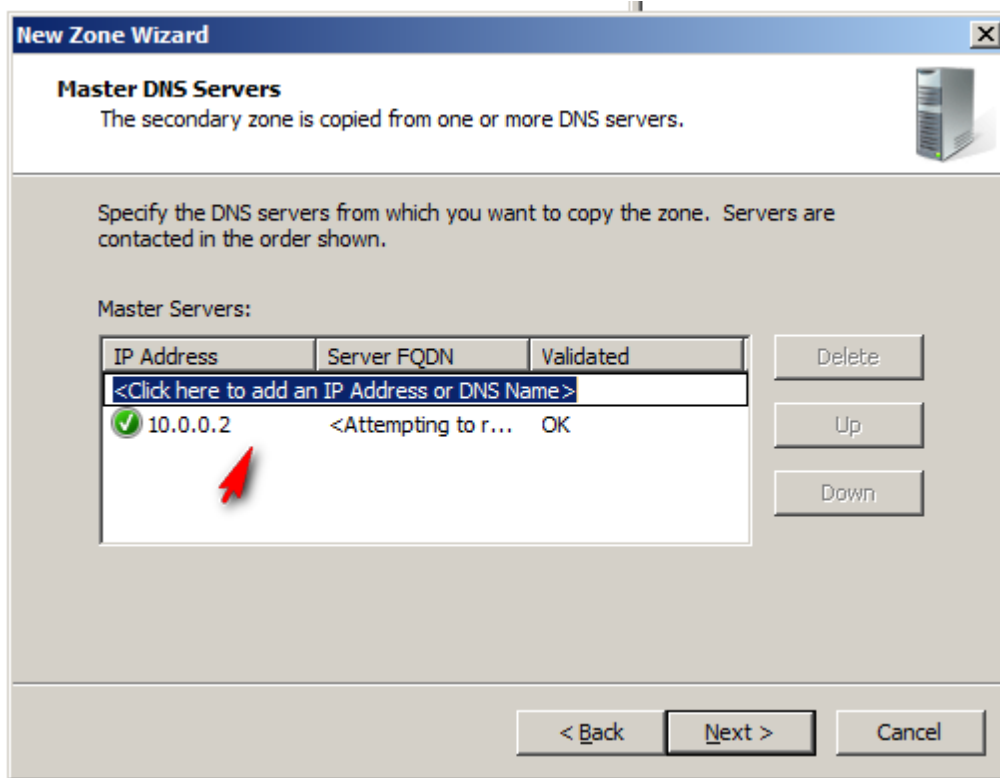
Same in limu.local domain



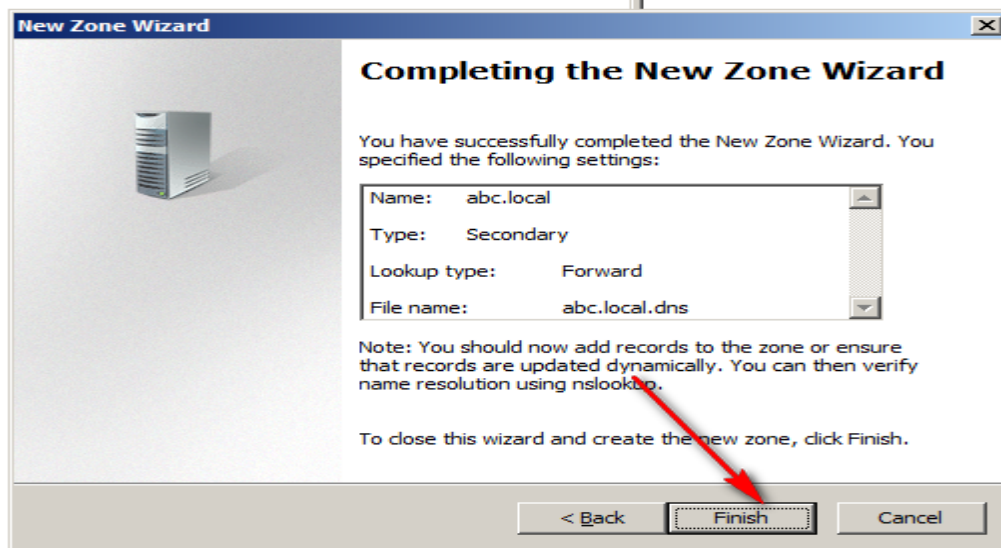
Zone name



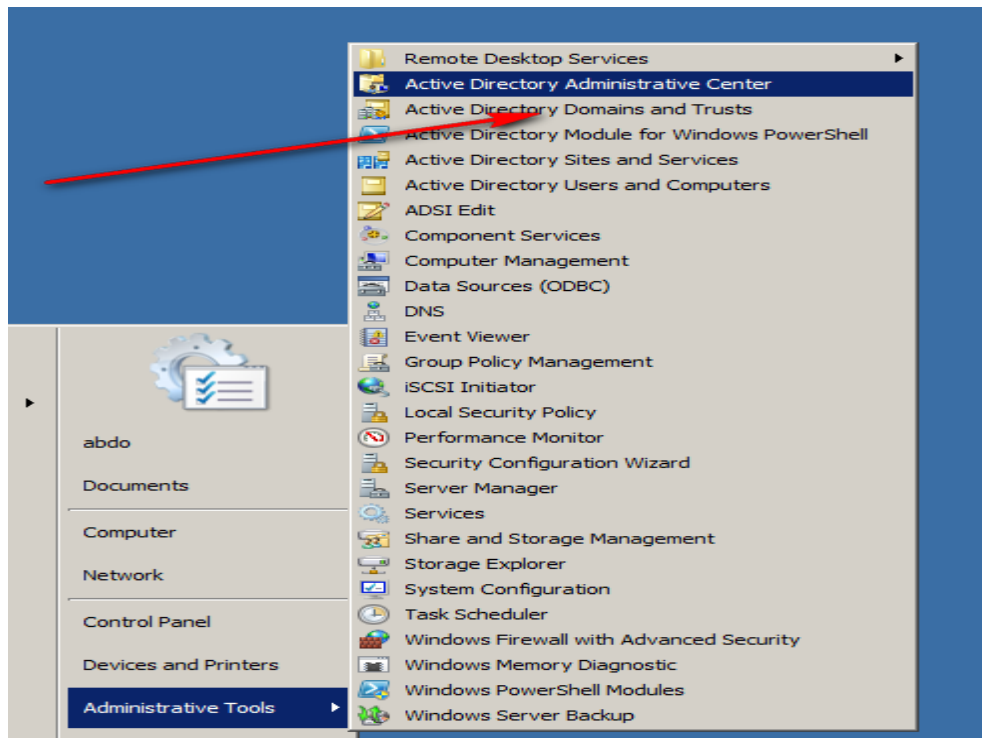
Ip address of another domain



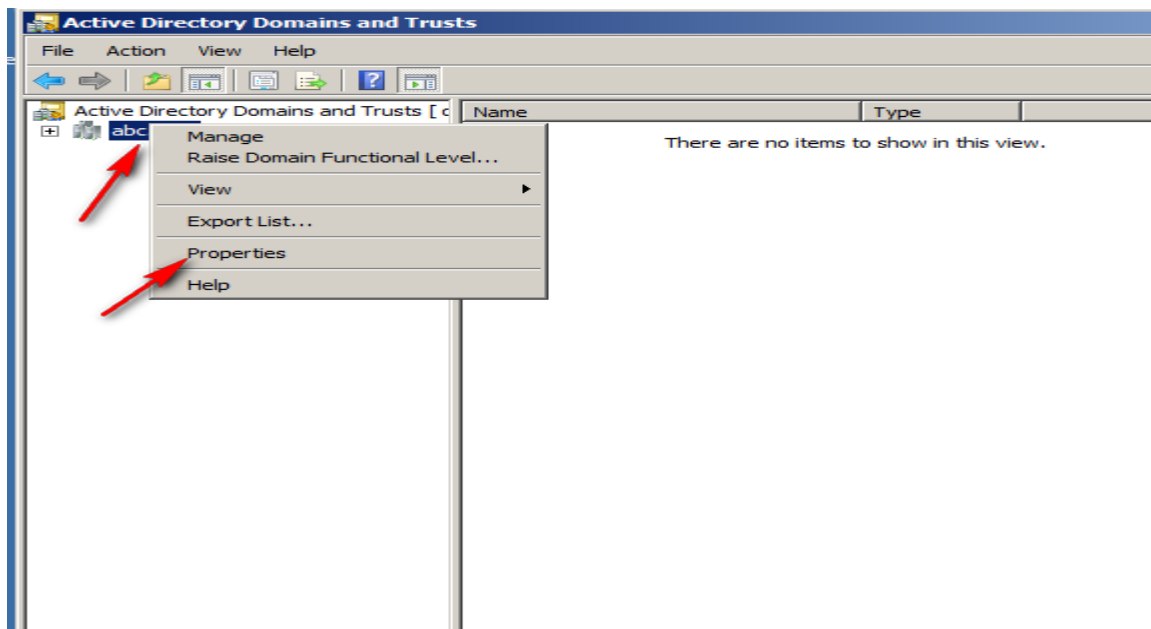
Finish



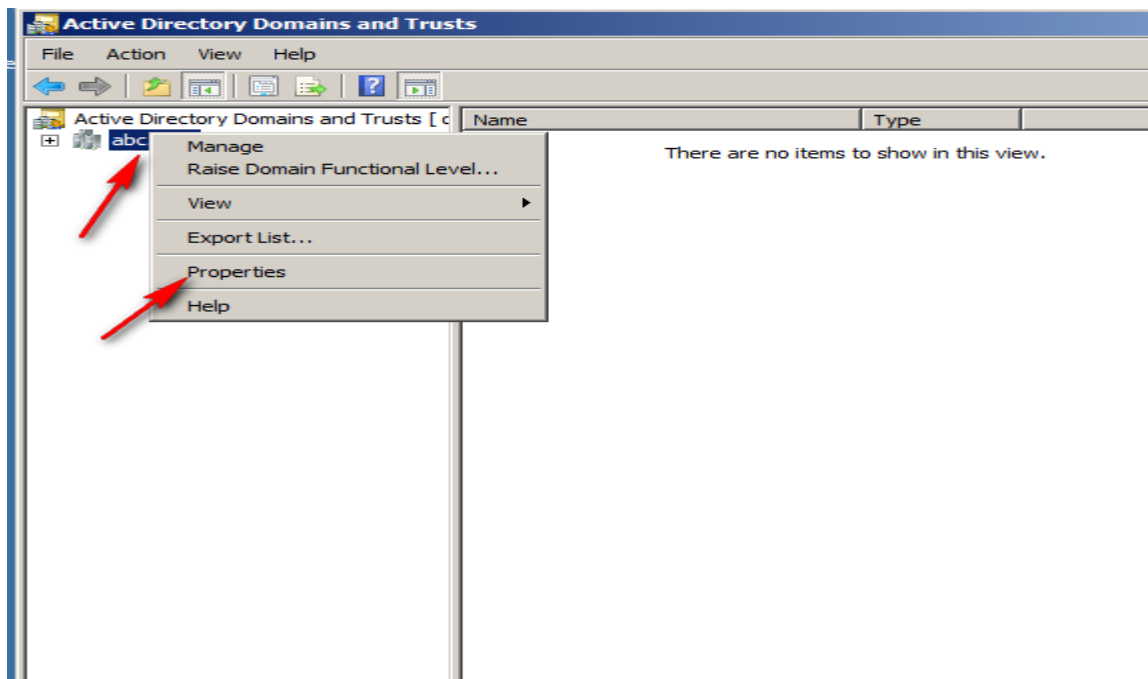
Open active directory domains and trusts



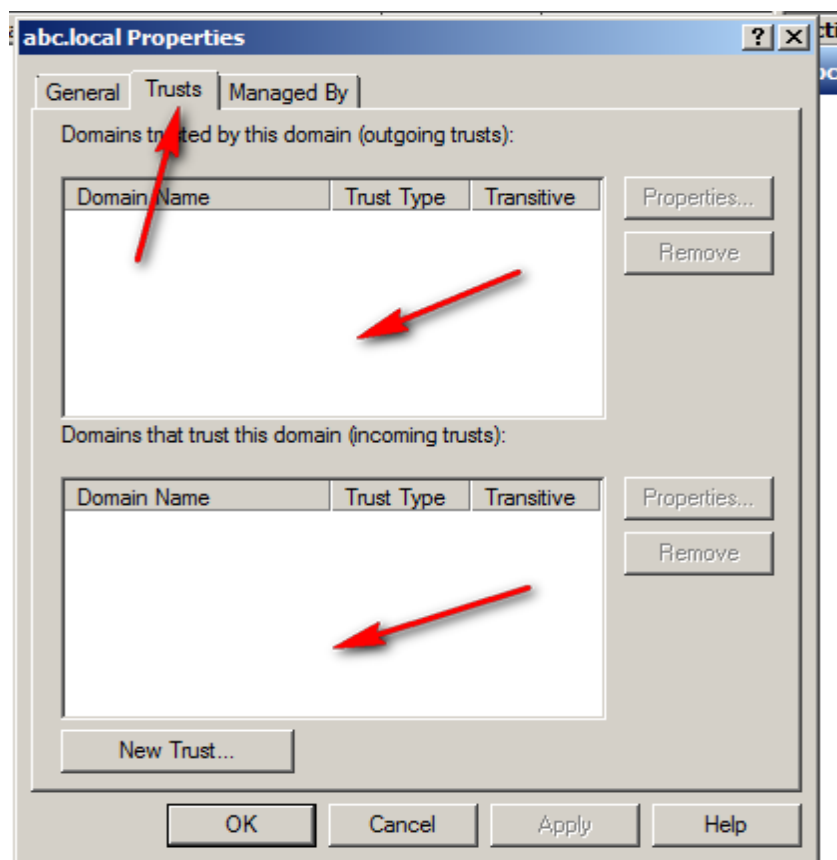
On abc domain Properties of abc.local



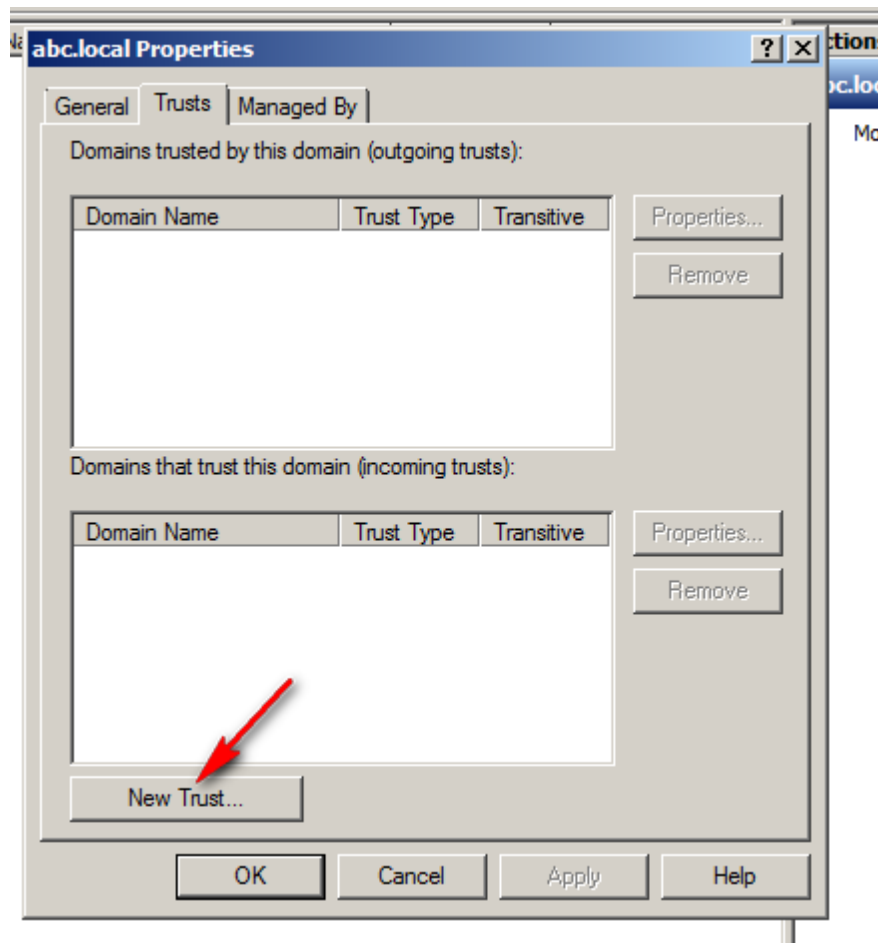
On abc domain Properties of abc.local



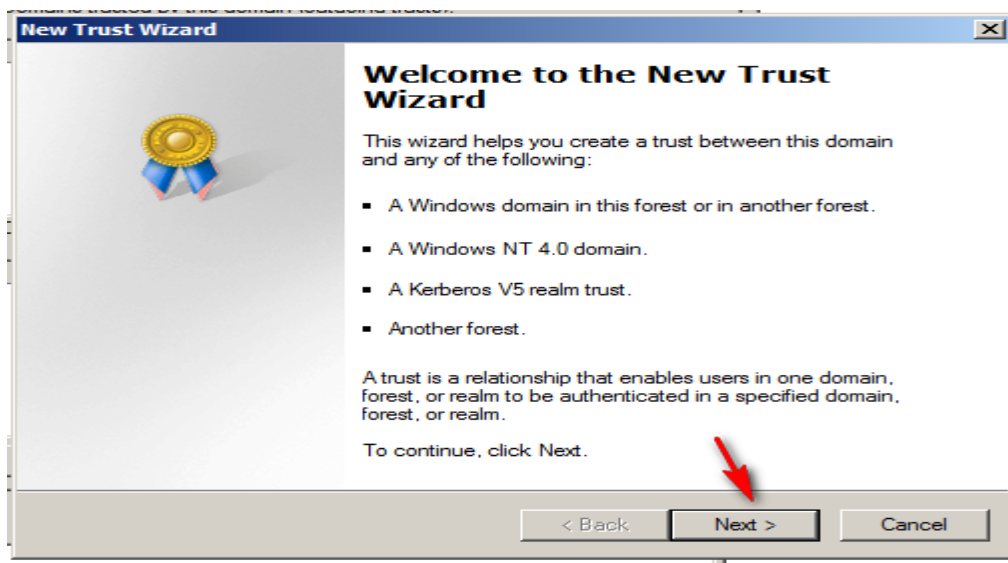
Trusts



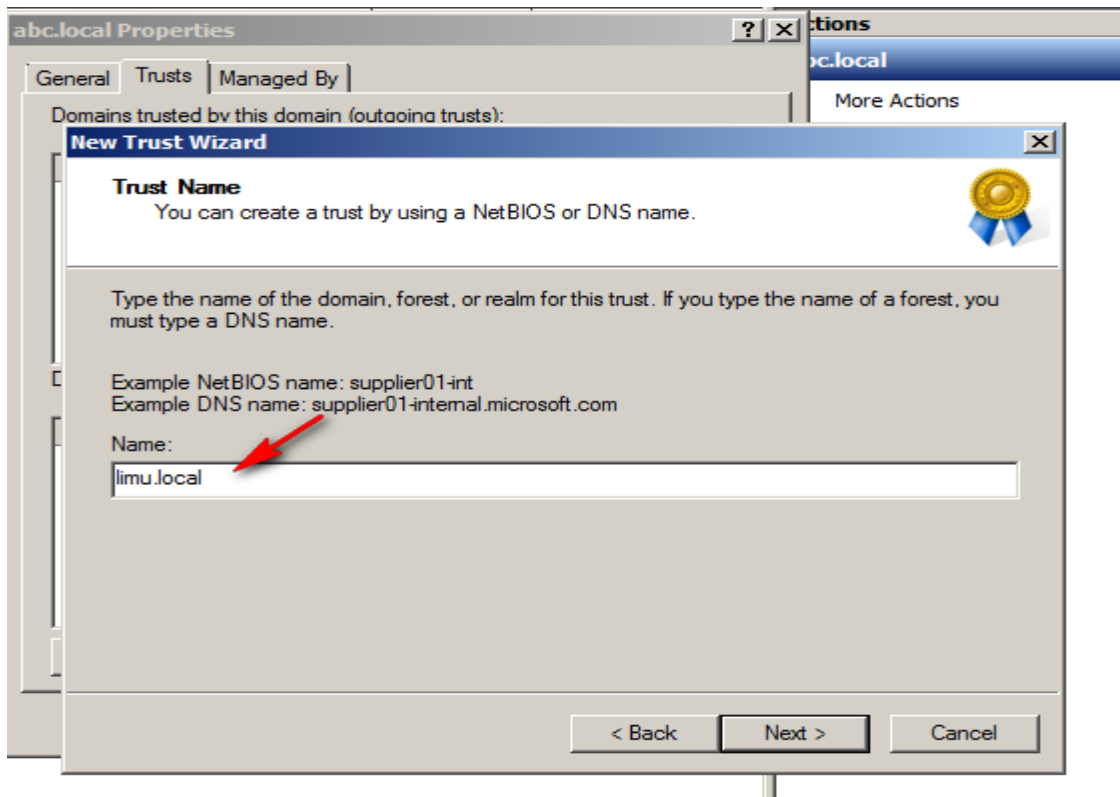
New trust



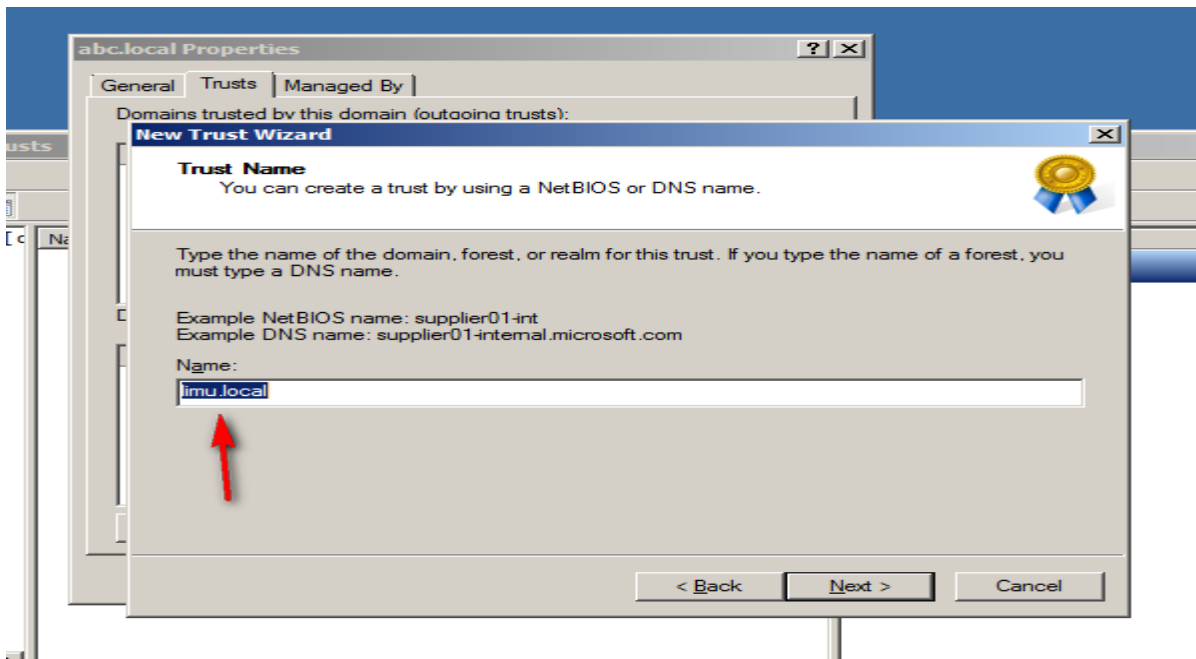
Next



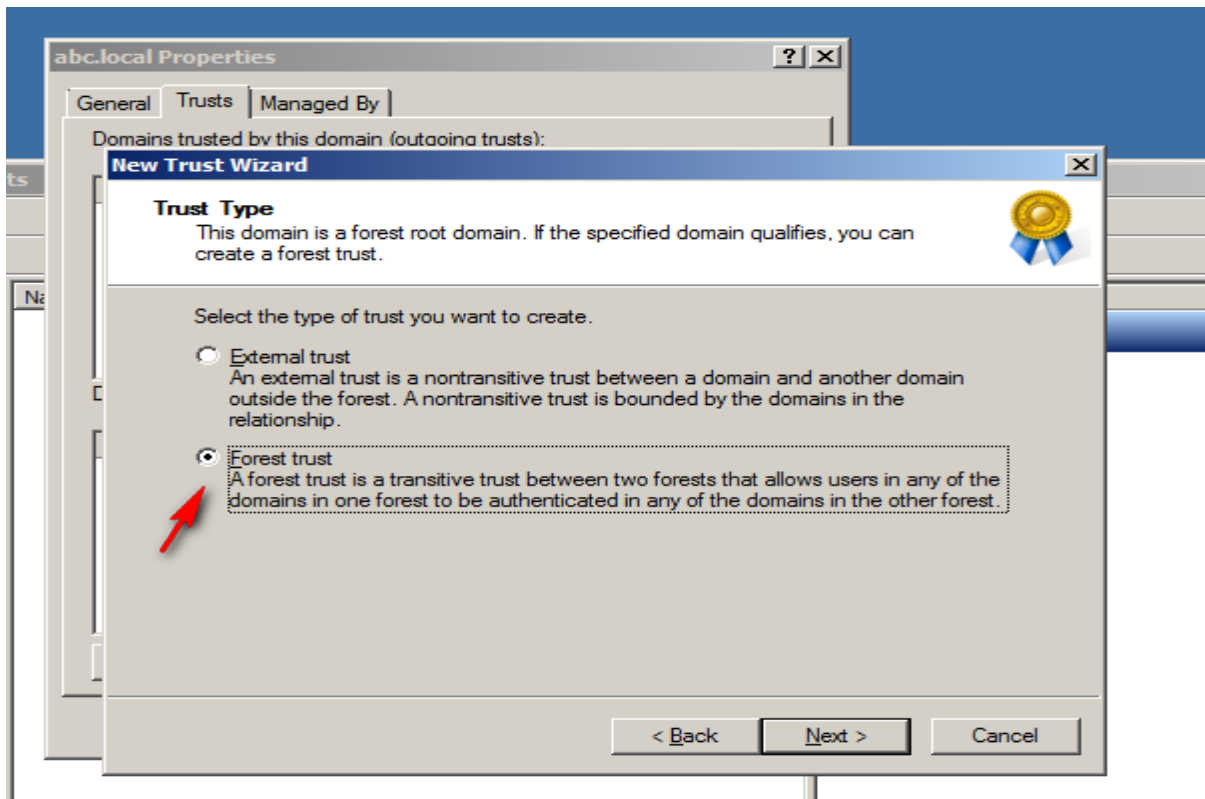
Type name of another domain



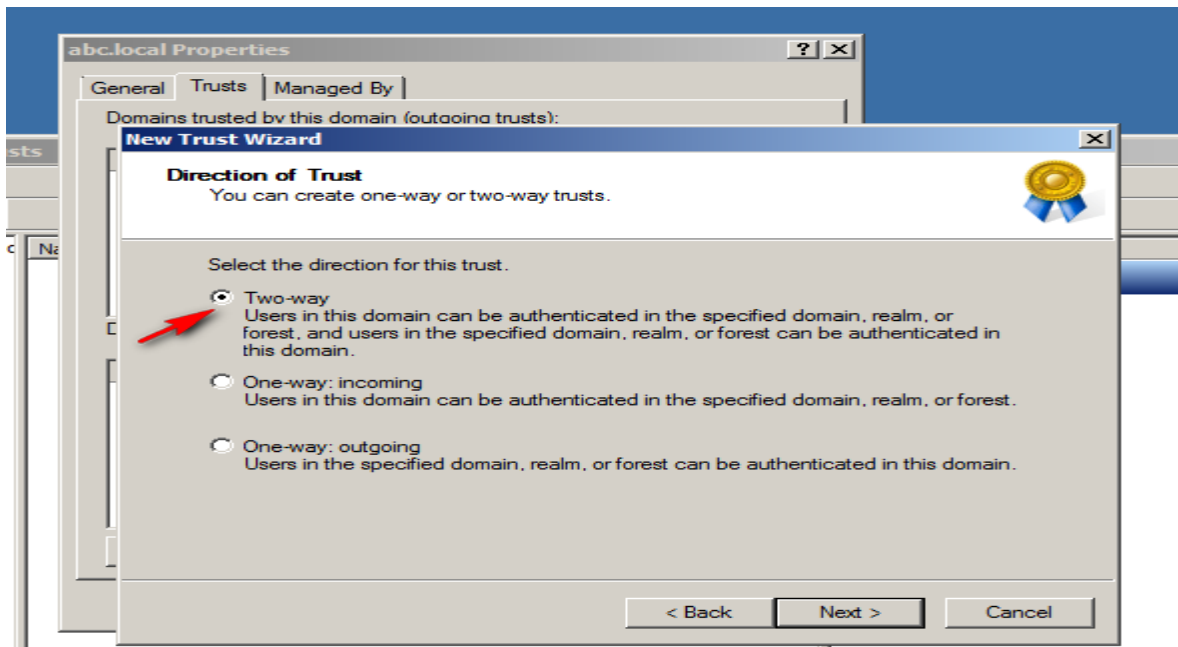
On abc domain complete the steps



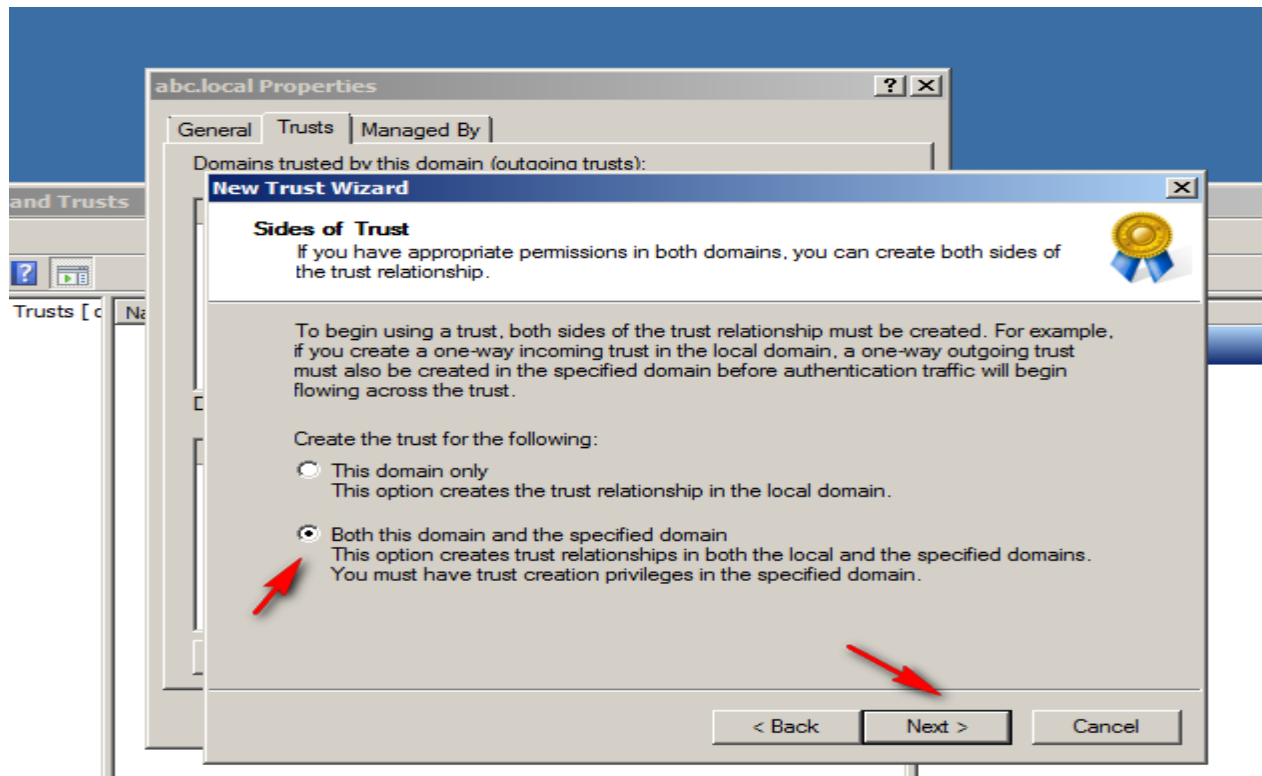
Forest trust



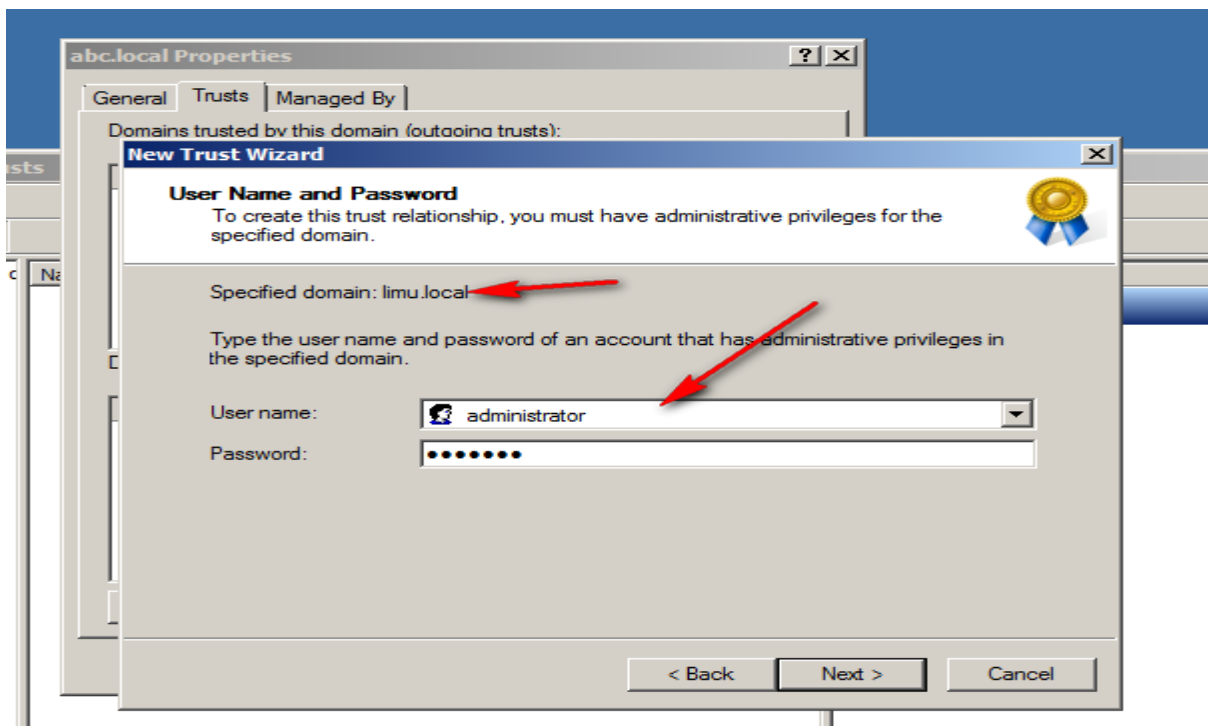
Two – way



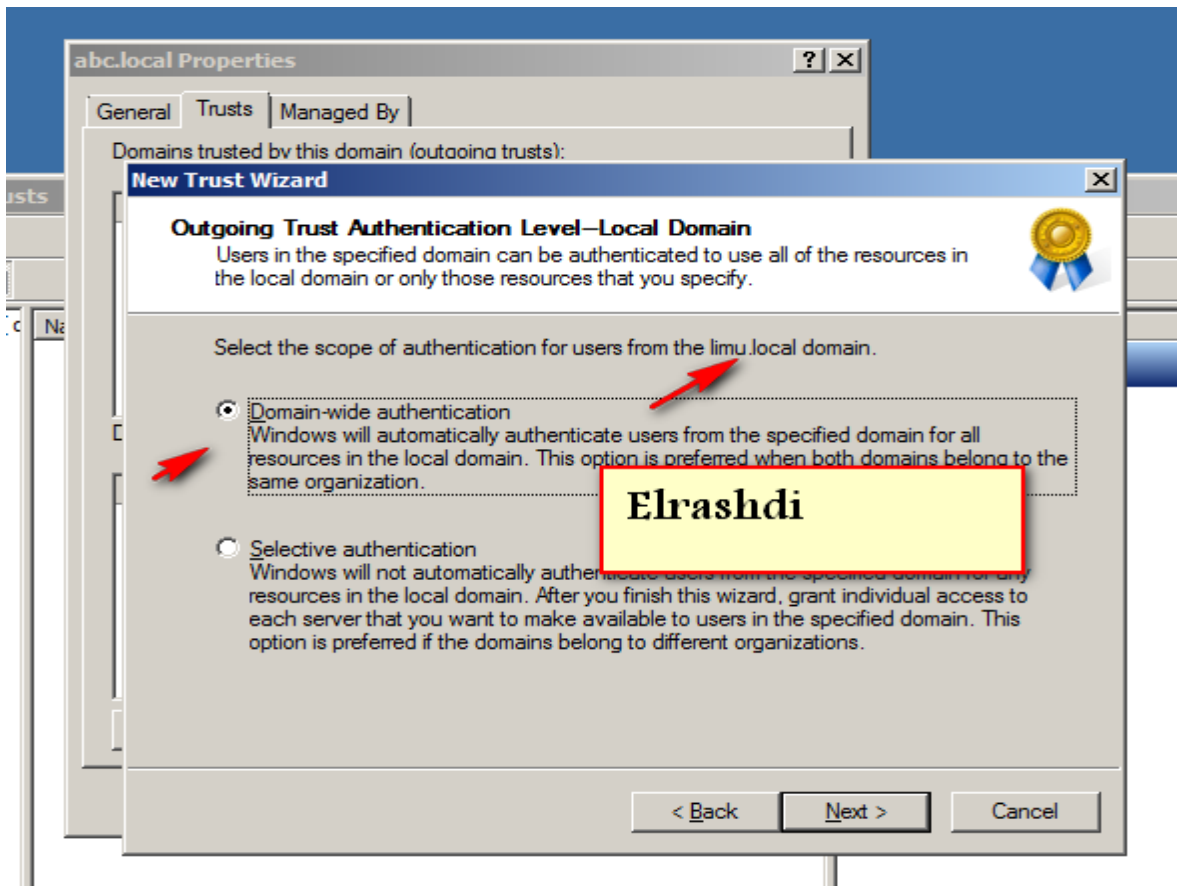
Both this domain and the specified domain



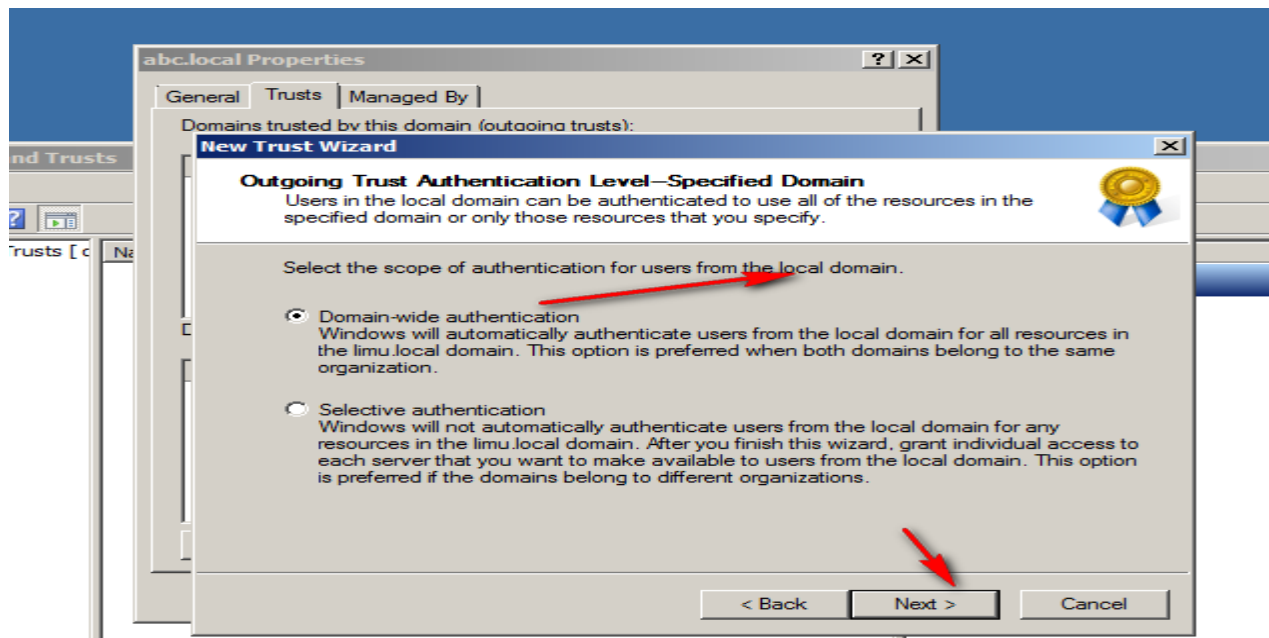
Type password of another domain



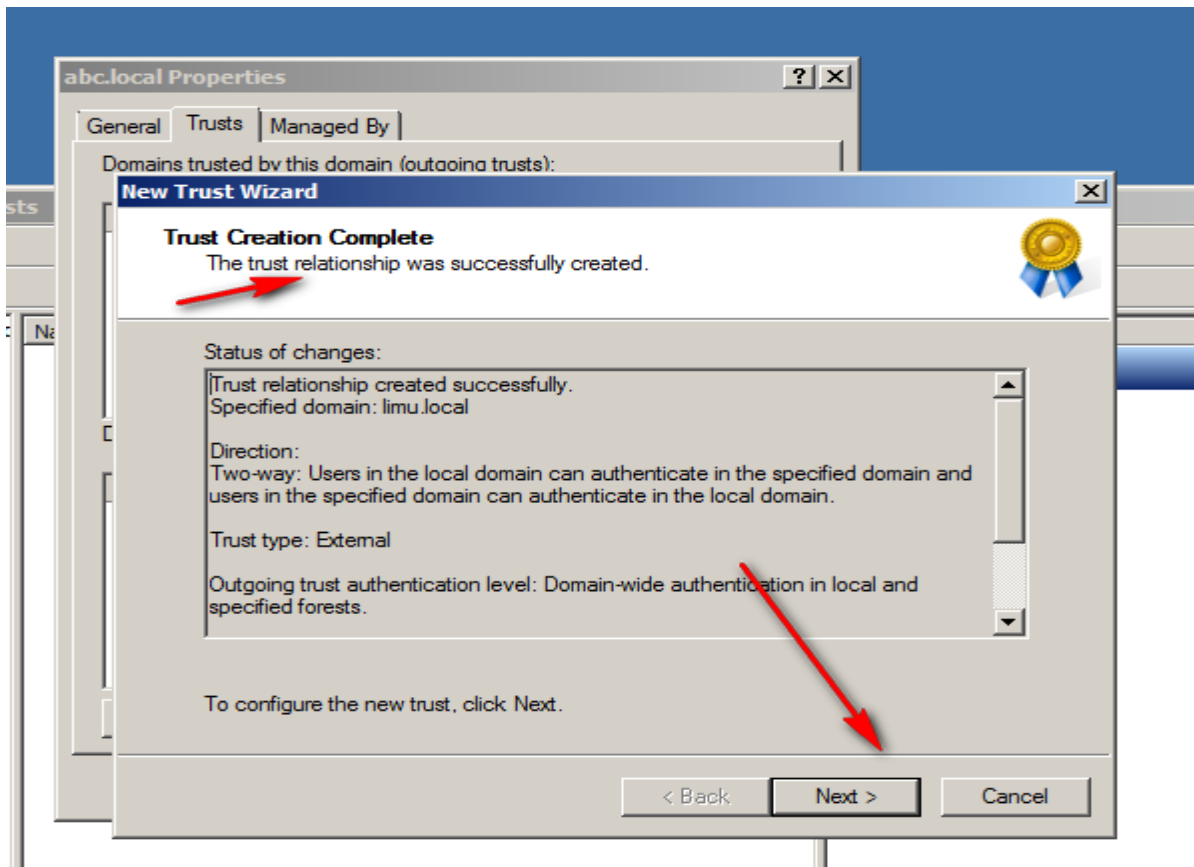
Domain-wide authentication for LIMU.local



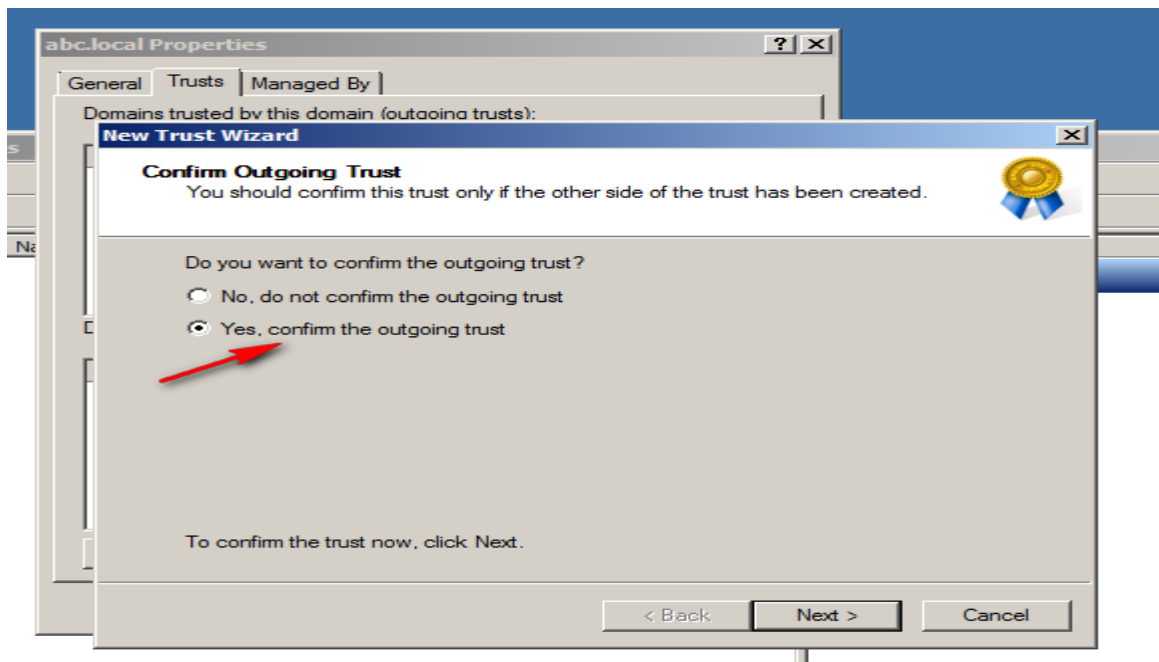
Also for local domain



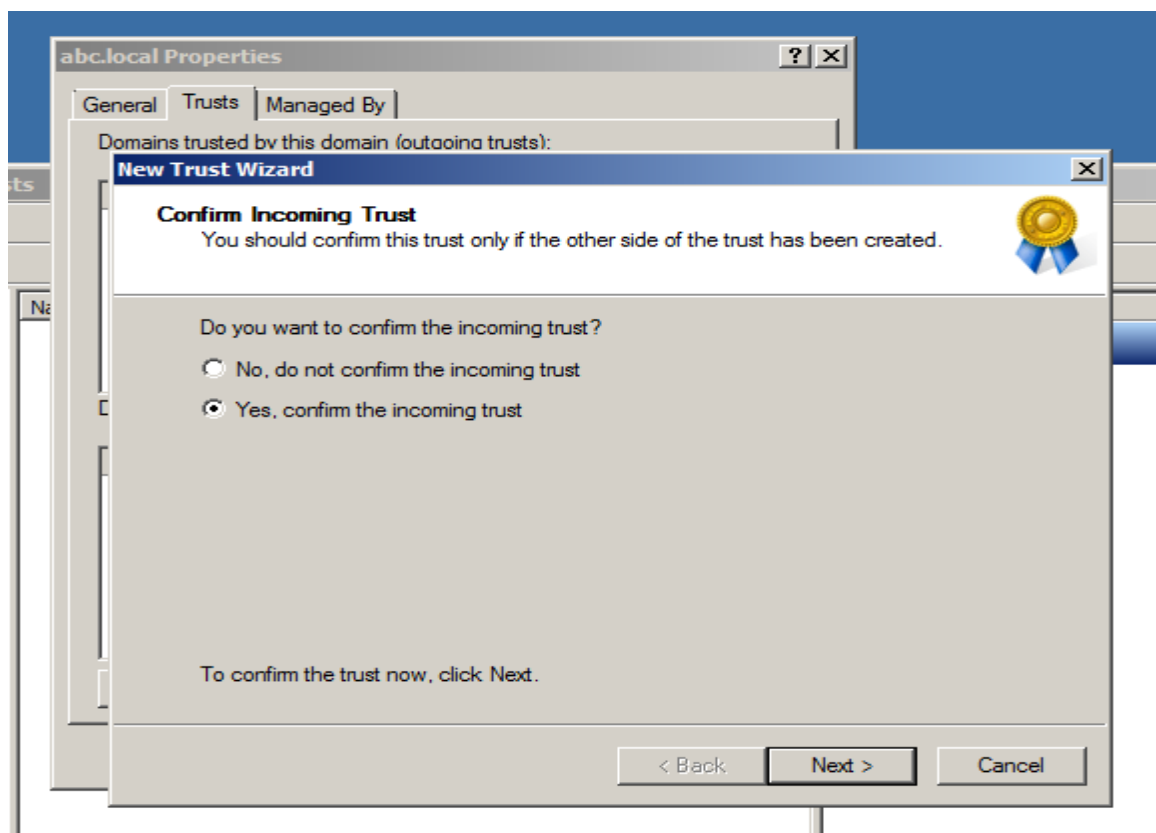
Trust complete



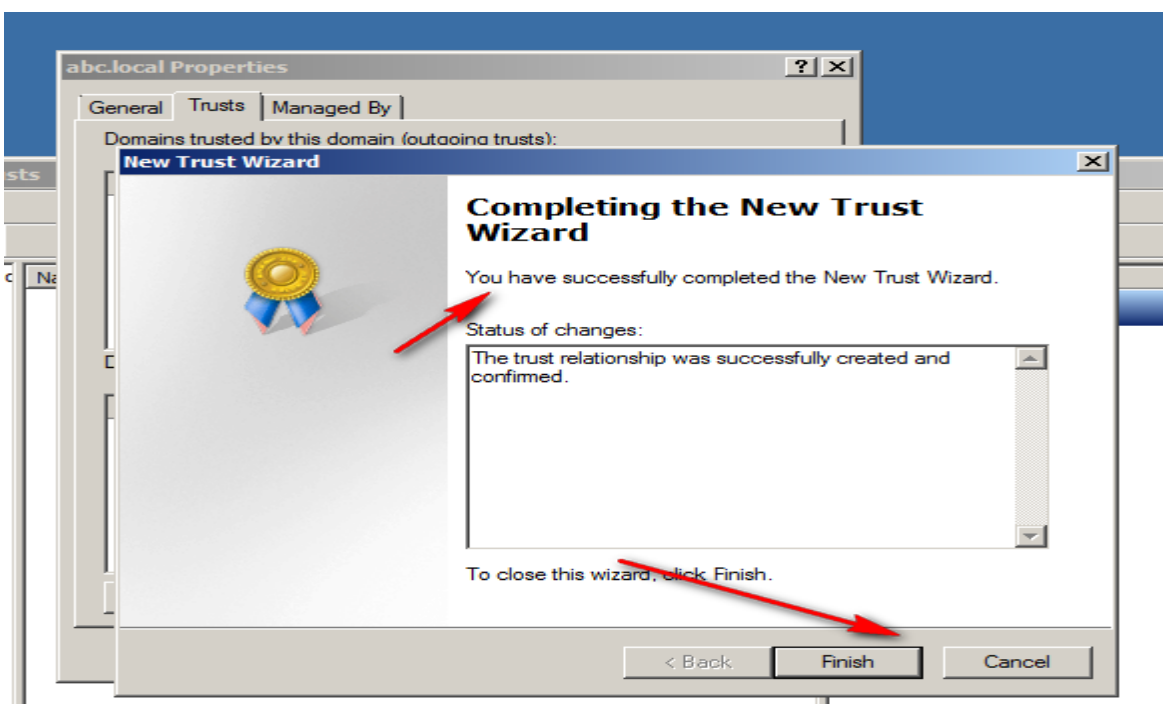
Yes confirm



Yes confirm



Finish



30-Backup windows server and active directory

من اهم الاشياء الذي يجب ان عملها لضمان استمرارية العمل في بيئة العمل الكبيرة هي عمل نسخ احتياطية لل windows server and active directory

Backing up Server 2008 Active Directory

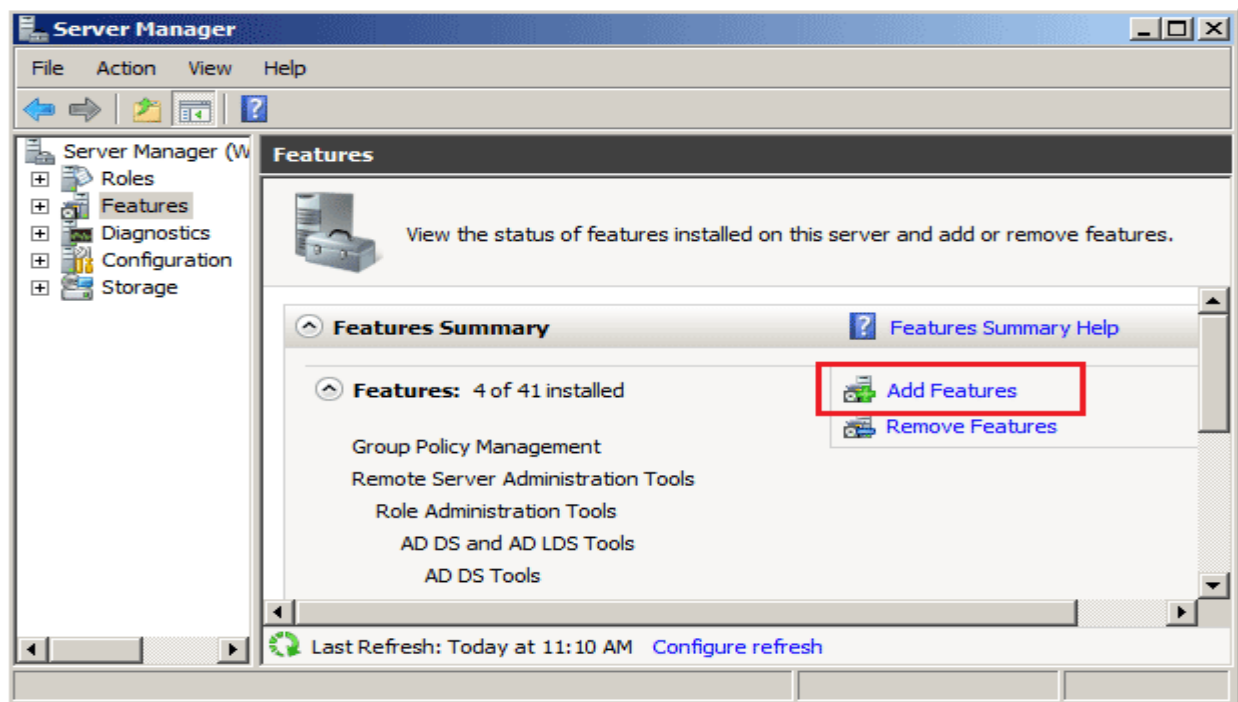
Now that we have the backup features installed we need to backup Active Directory. You could do a complete server backup, but what if you need to do an authoritative restore of Active Directory?

As you'll notice in Server 2008, there isn't an option to backup the System State data through the normal backup utility.

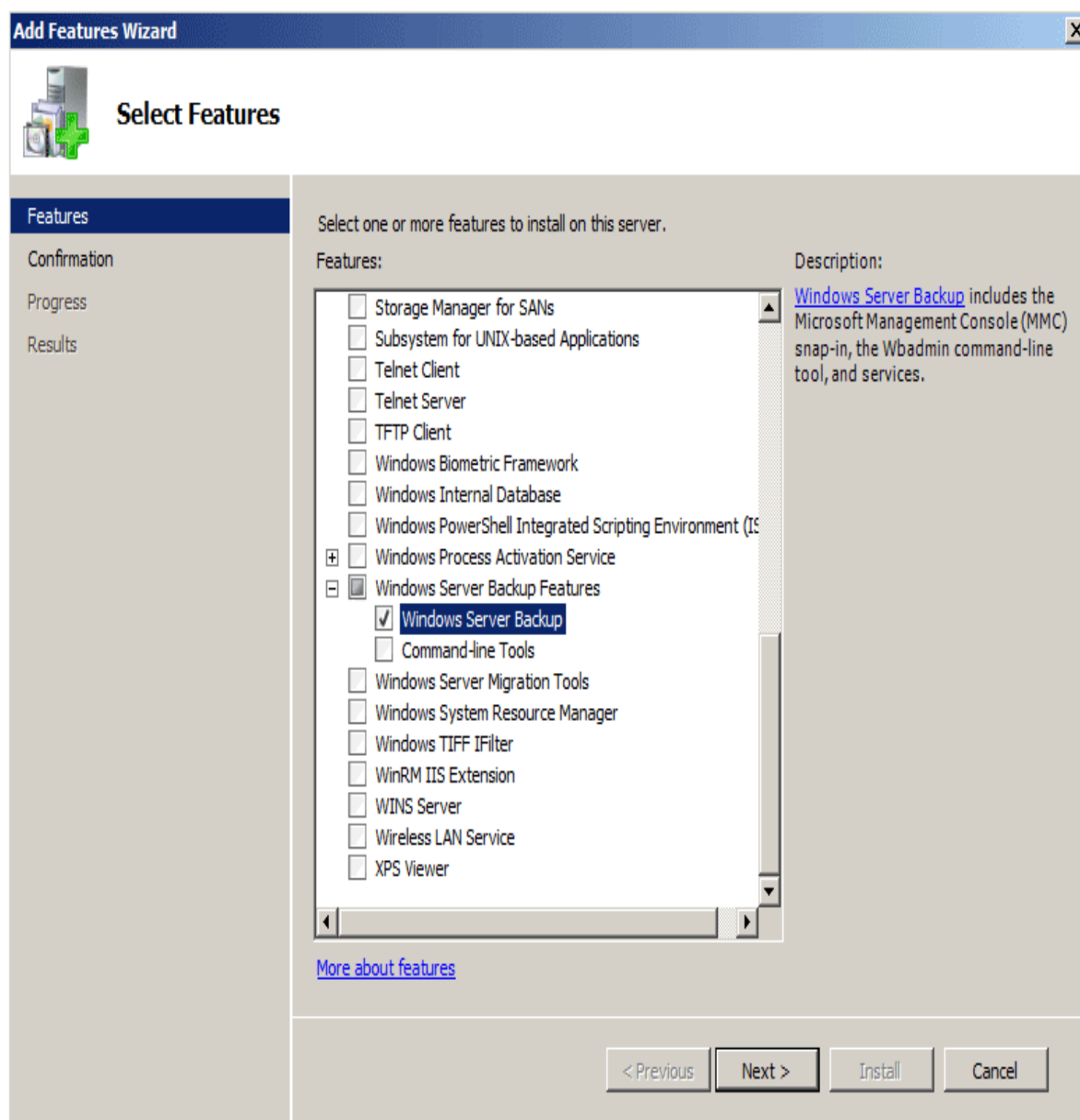
30.1- Install Windows Server Backup

Go to Start menu, and then select Administrative Tools, click on Server Manger.

Under Server Manager window, click on the **Add Features** link from the features summary section.



Select the **Windows Server Backup Features**, and then click on Next. The Command-line Tools allows you to perform a DC backup and recovery from the command line.

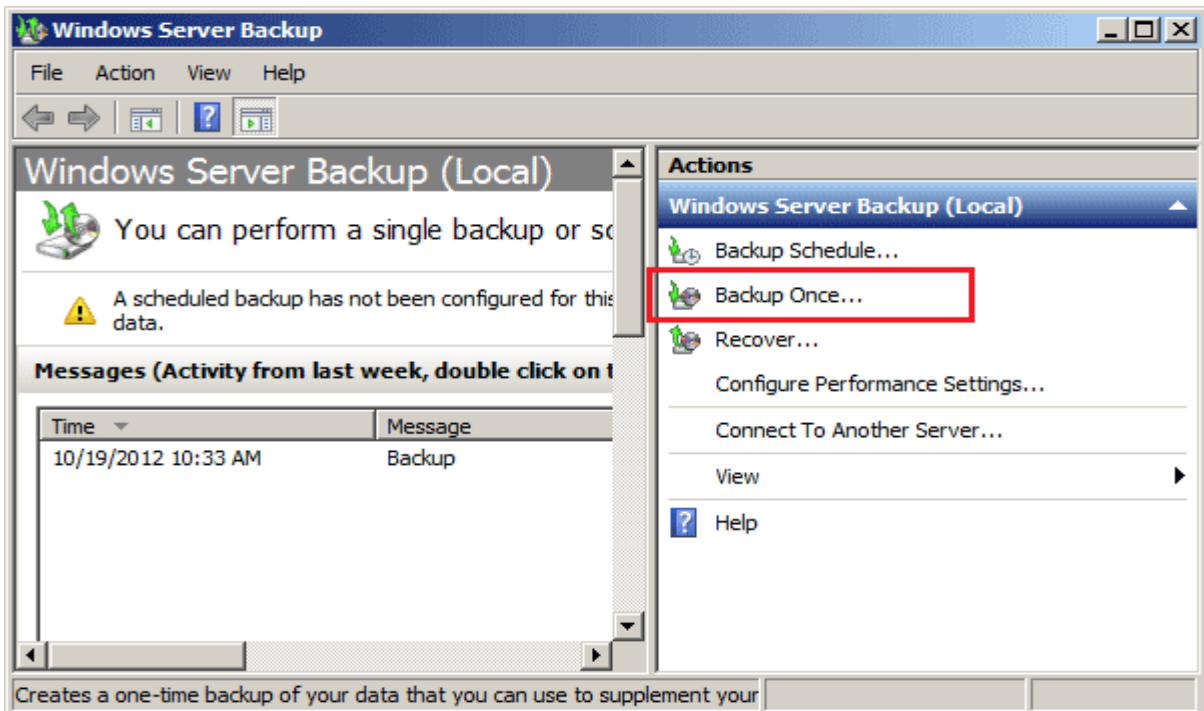


Backup Windows Server 2008 Active Directory

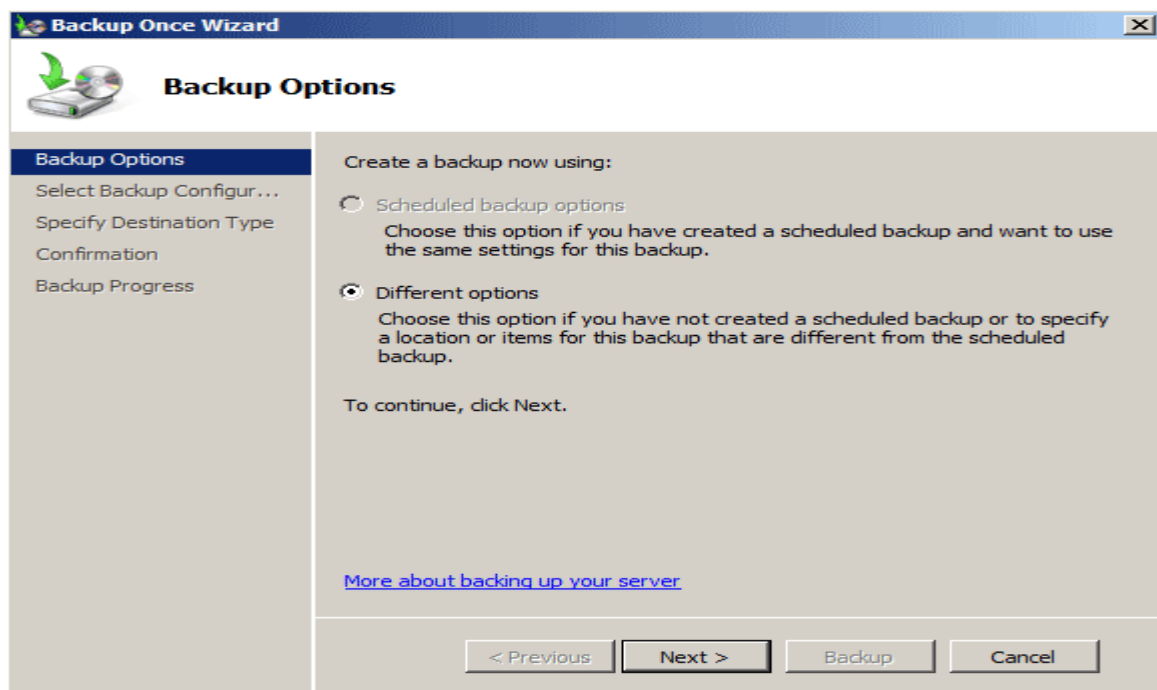
Now that we have Windows Server Backup installed lets perform our first backup of Active Directory in Windows Server 2008.

Go to Start menu, and then select Administrative Tools, click on Windows Server Backup.

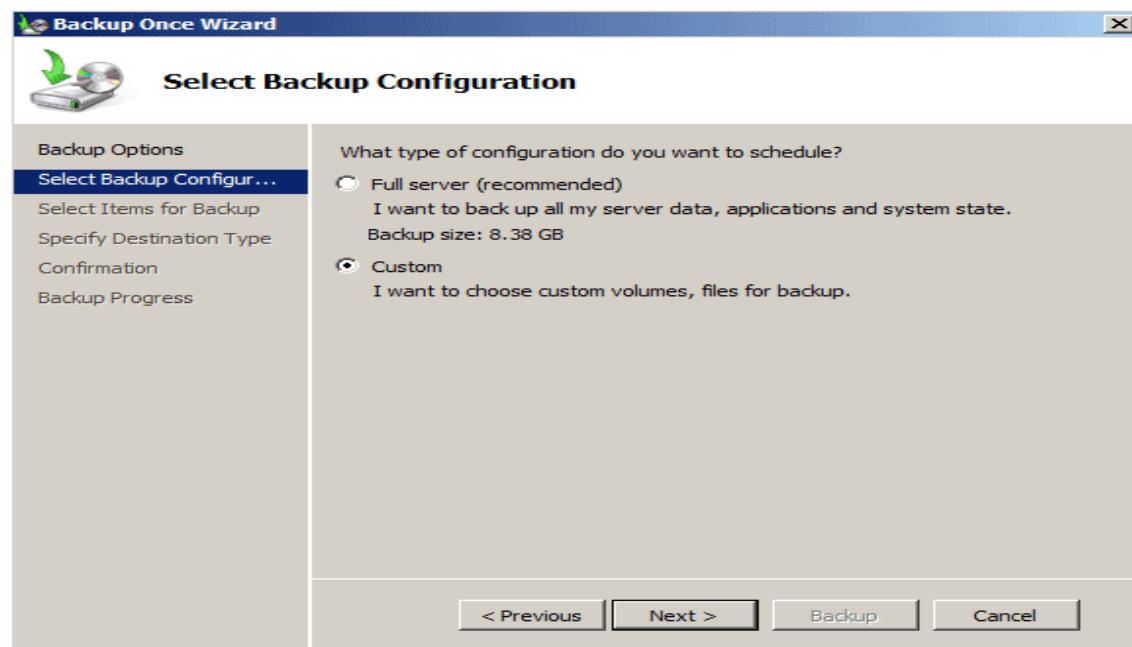
Select the **Backup Once** option to perform an immediate backup as illustrated in the screen below.



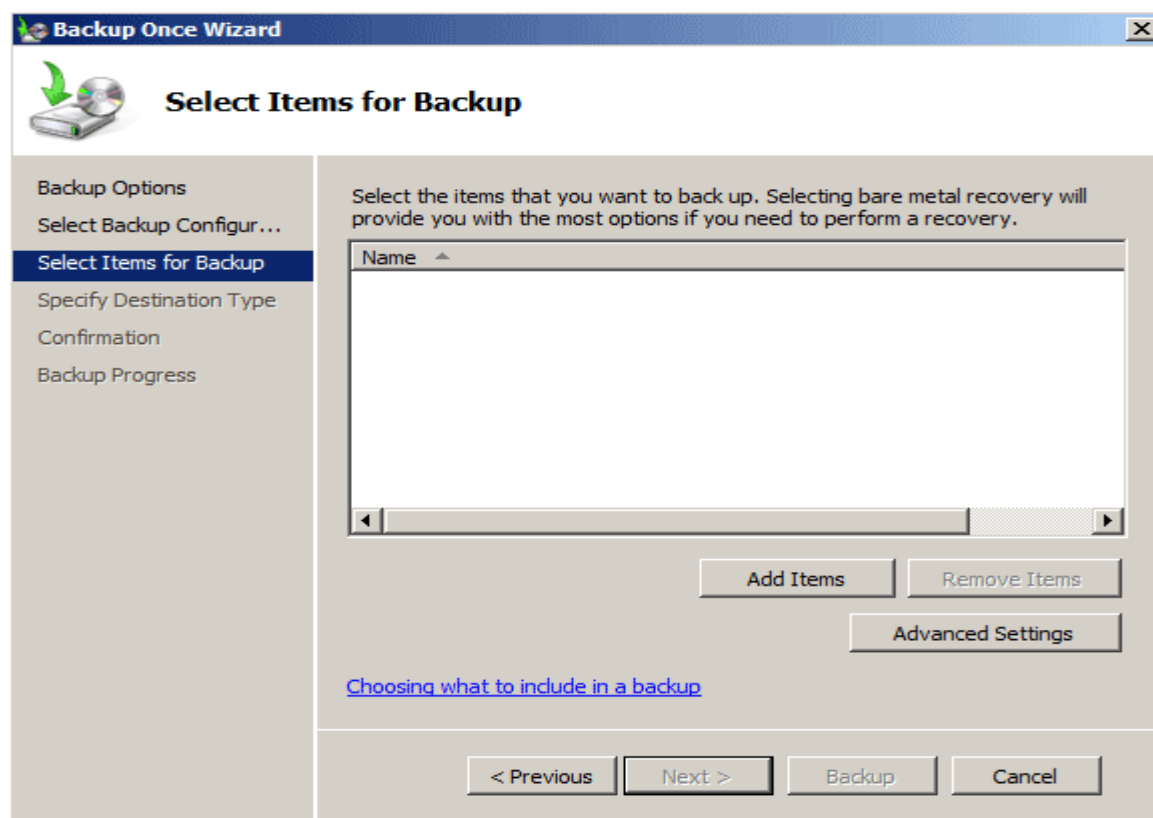
It will bring up the Backup Once Wizard, select **Different Options** and then click Next.



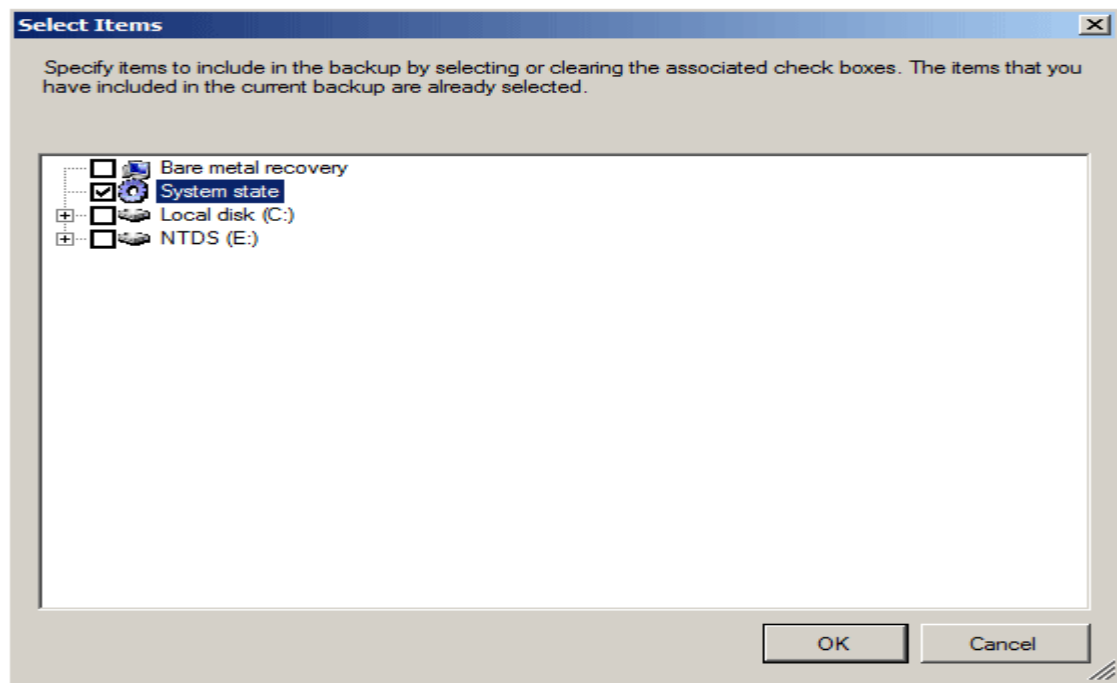
If you want to perform a full backup of your server, click on the Full server option. Now we're going to perform a system state backup, so we choose the Custom option.



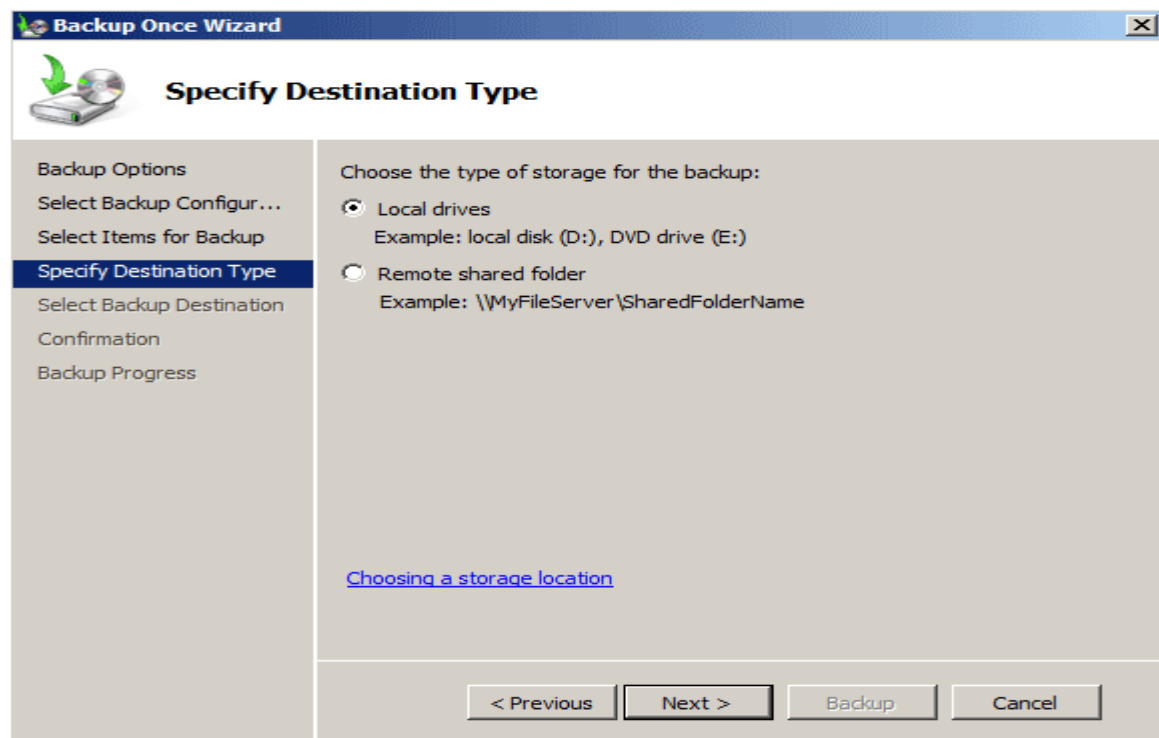
In the next window, you can customize the items you want to backup.



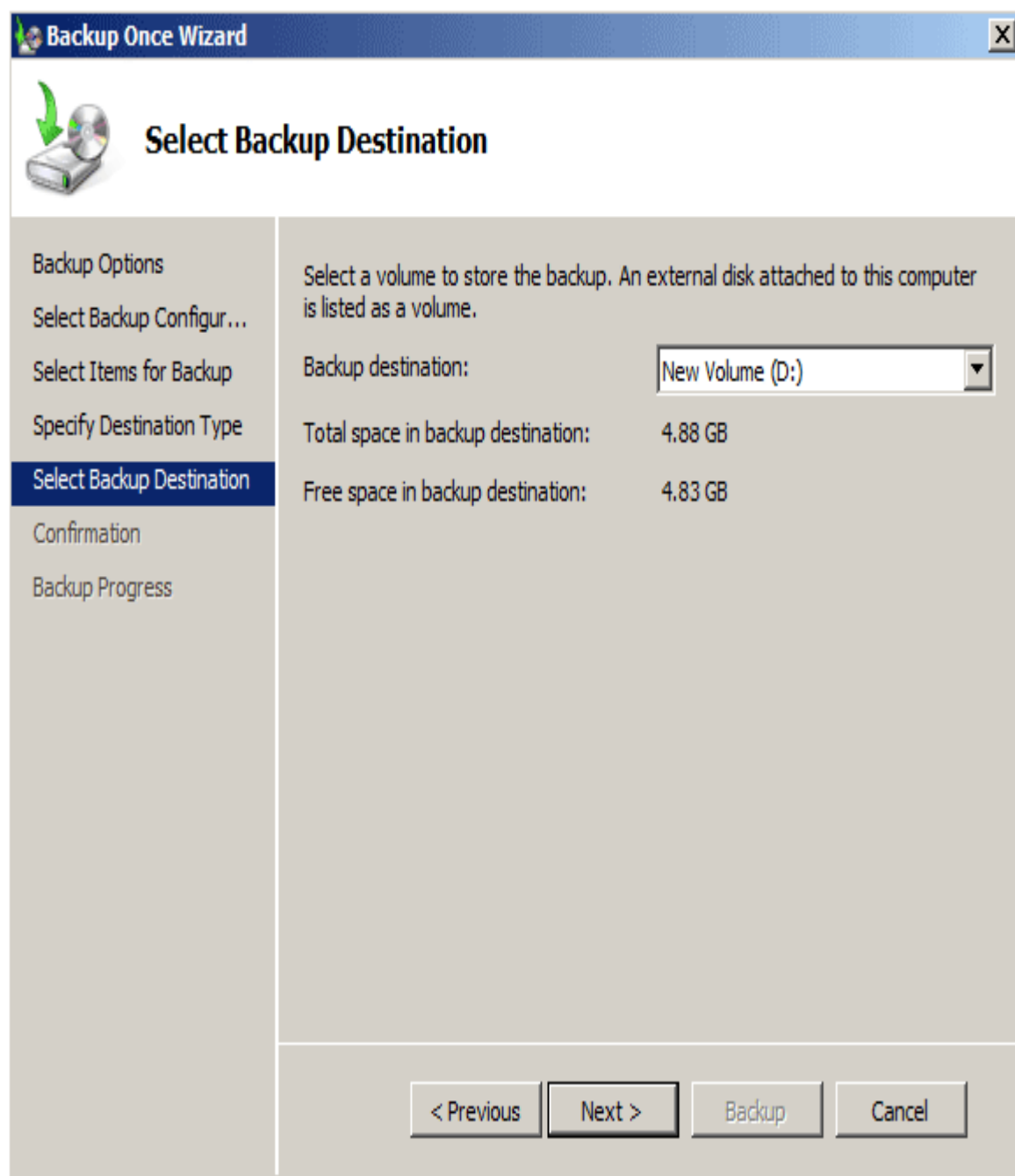
Click on Add Items button, check the System state option from the list. You can also choose to backup the entire NTFS volume on your computer.



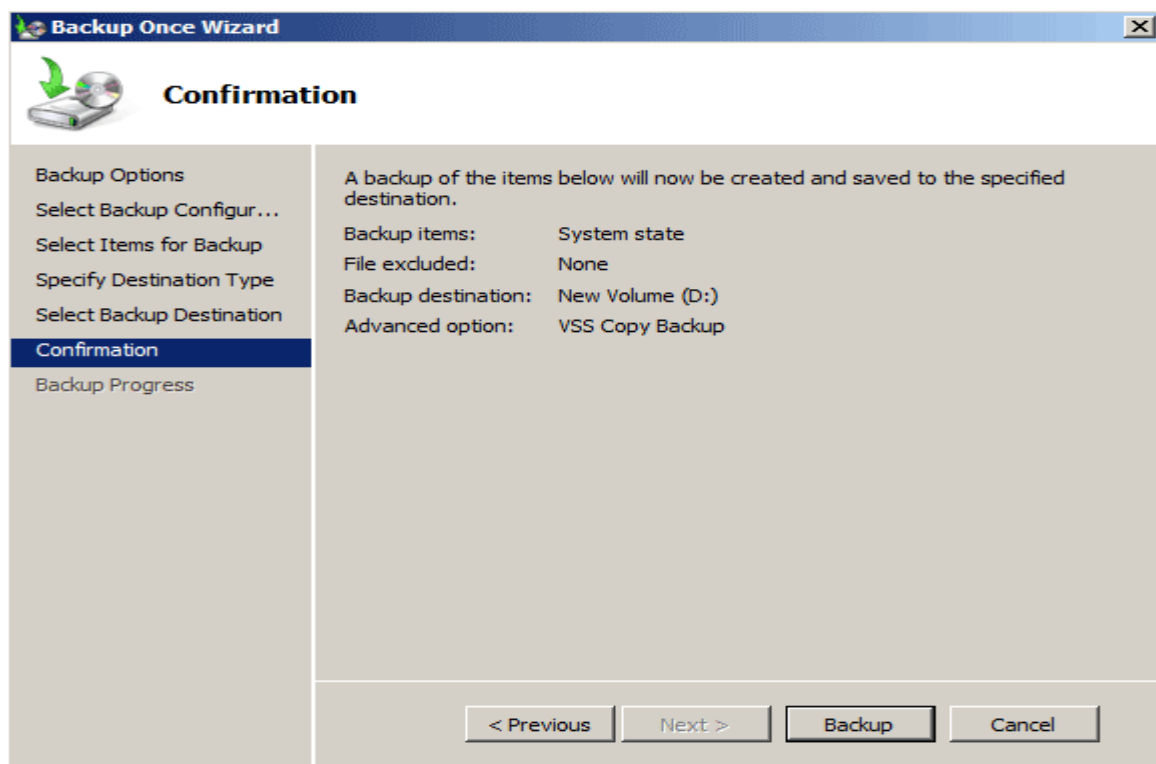
Specify the destination type for your backup. A system-state backup can't be performed directly to a network share so we have to choose the Local drives.



Next select a volume to store the backup. Windows Server Backup requires you to provide a separate target volume for the backup data. In single-volume server, you may need to shrink the existing partition to create a volume dedicated solely to backup data.



In the next window, confirm the options you have selected and then click on Backup.



If you want to script the backup process, or if you are backing up a server on a Server Core installation, you can use the WBADMIN.EXE command-line program. WBADMIN provides a complete set of options that perform essentially the same functions as the MMC snap-in, including performing a system state backup

```
Administrator: Command Prompt - wbadmin start systemstatebackup -backupTarget:d:
C:\Windows\system32>wbadmin start systemstatebackup -backupTarget:d:
wbadmin 1.0 - Backup command-line tool
(C) Copyright 2004 Microsoft Corp.

Starting to back up the system state [10/19/2012 4:04 PM]...
Retrieving volume information...
This will back up the system state from volume(s) Local Disk(C:),NTDS(E:) to d:.
Do you want to start the backup operation?
[Y] Yes [N] No Y

Creating a shadow copy of the volumes specified for backup...
```

30.2- Restore window server 2008

إعادة النسخة الاحتياطية التي تم اخذها مسبقا في حاله وجود مشكلة في window server 2008.

Start the computer by using the Windows Server 2008 DVD

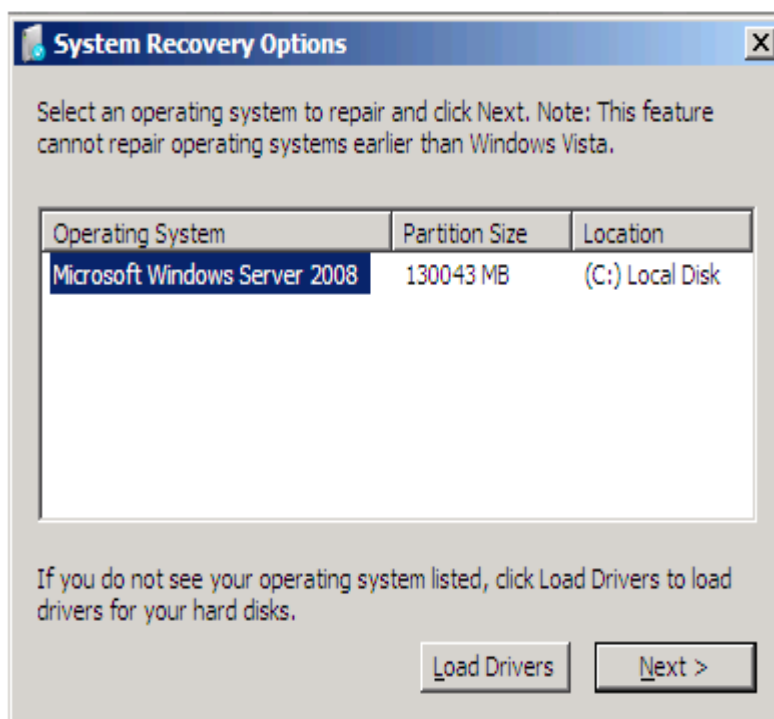
On the first screen Click Next.



Select the “Repair your computer” option in the lower-left corner of screen.

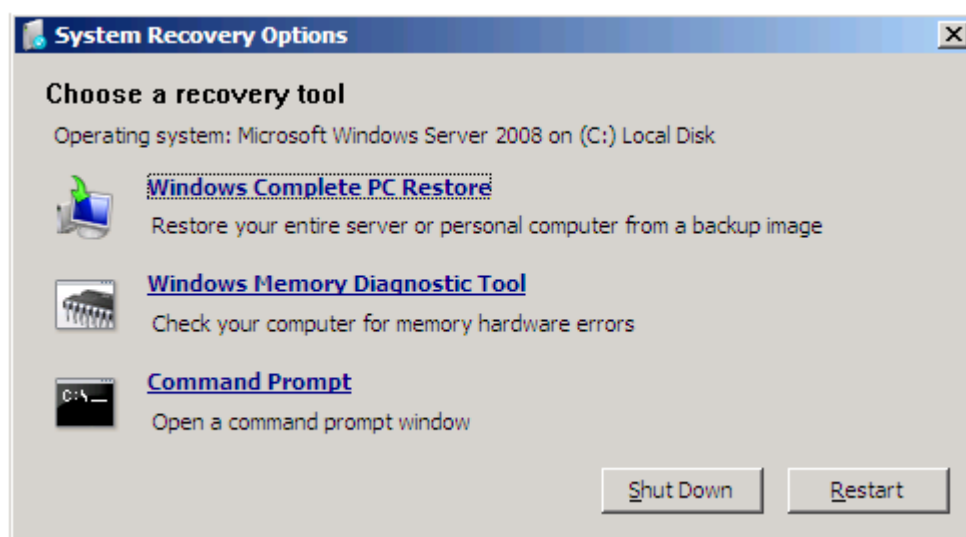


It will show you any currently installed operating systems. Click Next.

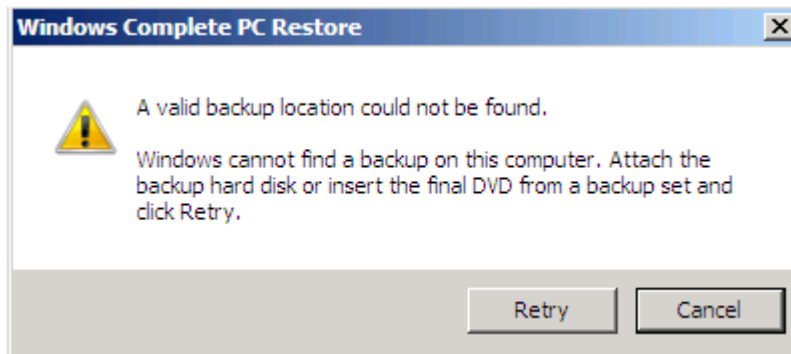


If this screen is blank you may have to load a third-party driver for your mass storage driver. You can click Load Drivers to load the mass storage driver from your USB flash drive.

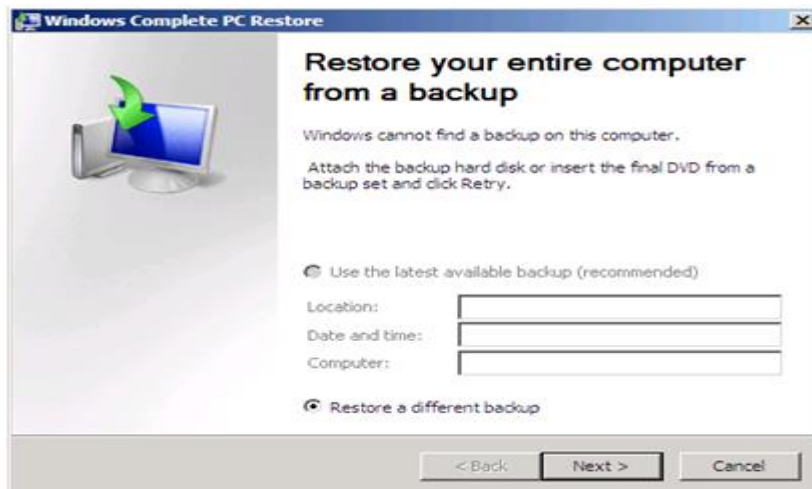
Click “Windows Complete PC Restore”



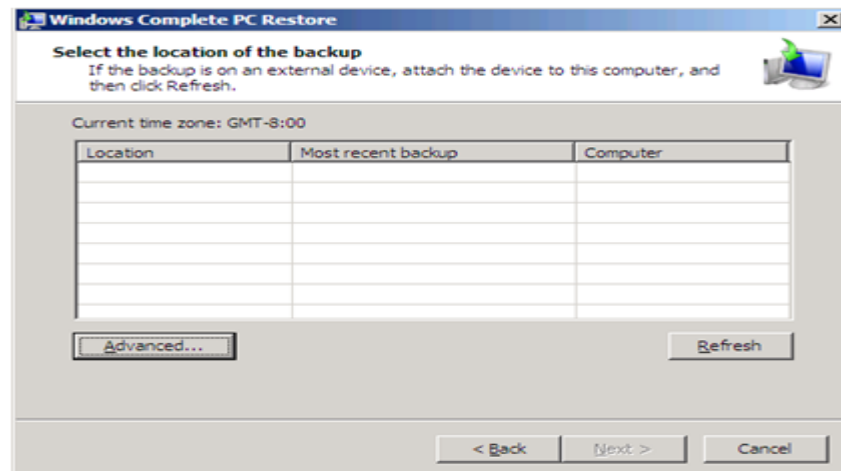
It will report “A valid backup location could not be found”. Click cancel.



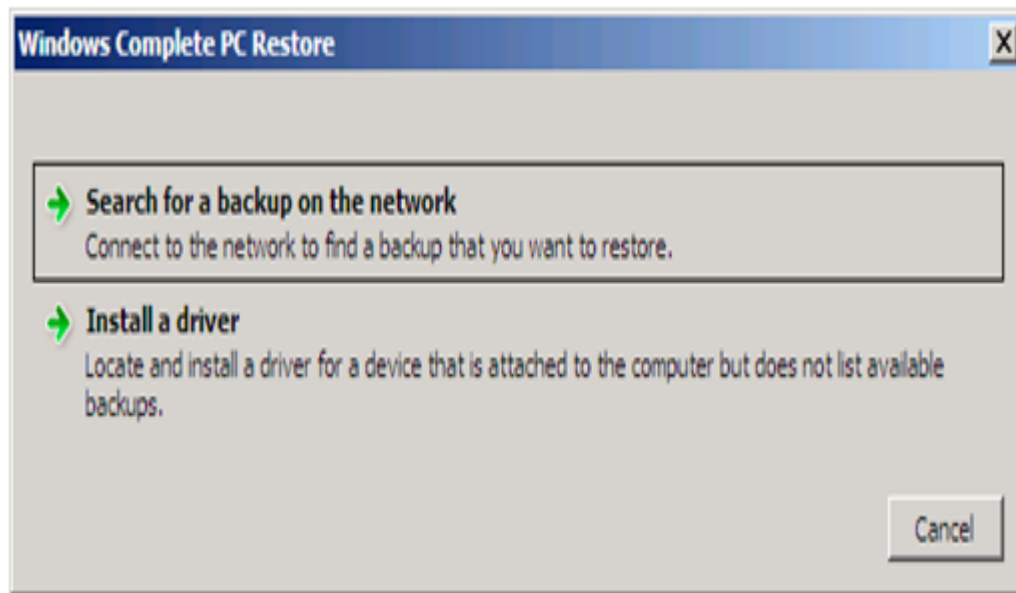
Select “Restore a different backup” then next.



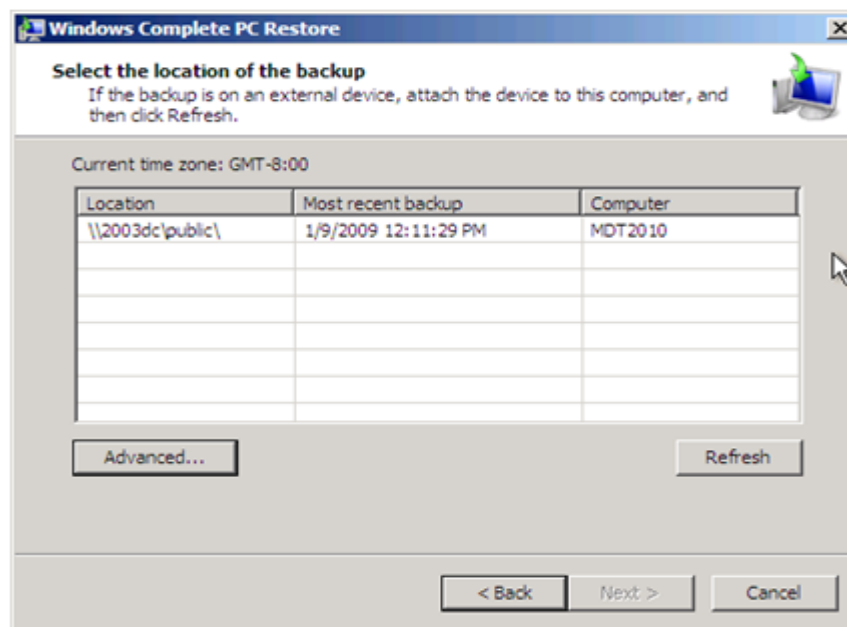
Click Advanced.



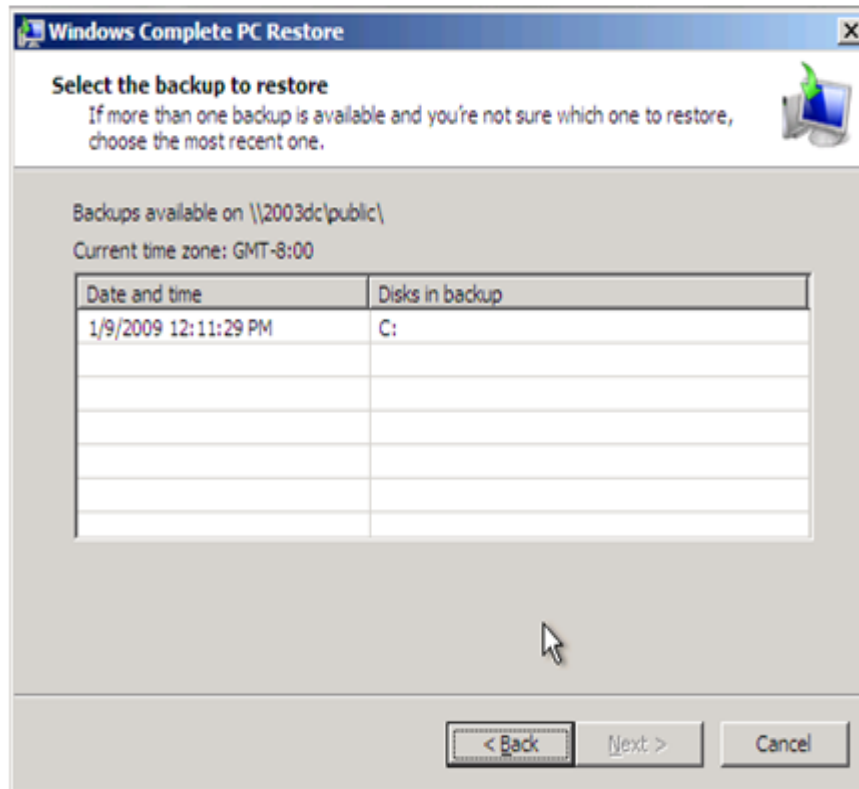
If the network adapter driver is included with Windows Server 2008 you can click “Search for a backup on the network. If the network adapter driver is not included you have to click “install a driver” and browse to your driver to load it. In my test I was using a Hyper-V virtual machine with the legacy network adapter. The legacy network adapter driver is in Windows Server 2008 so that it just works. The synthetic driver is not included.



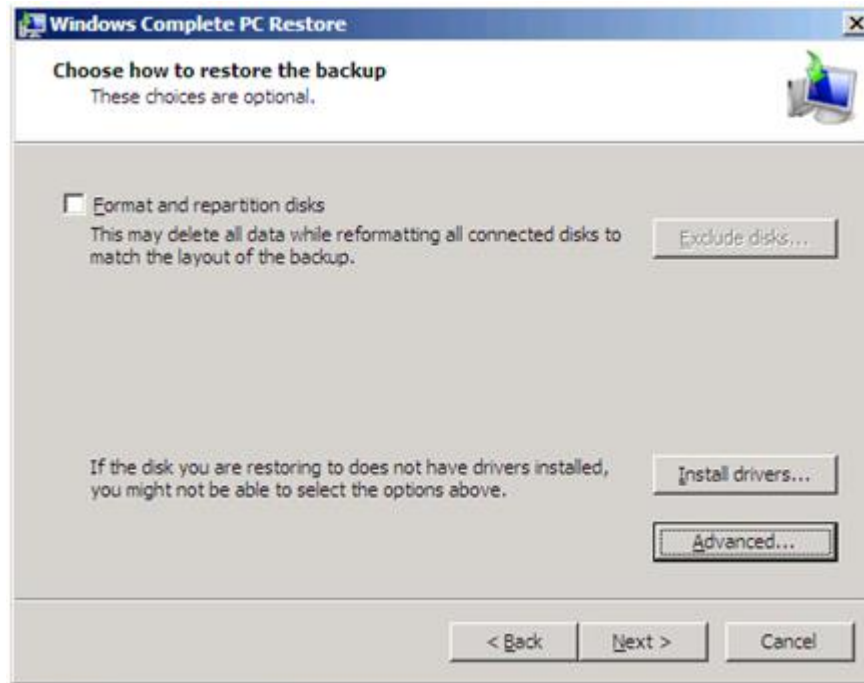
Select the backup listed and then click Next.



Select the backup then Next.

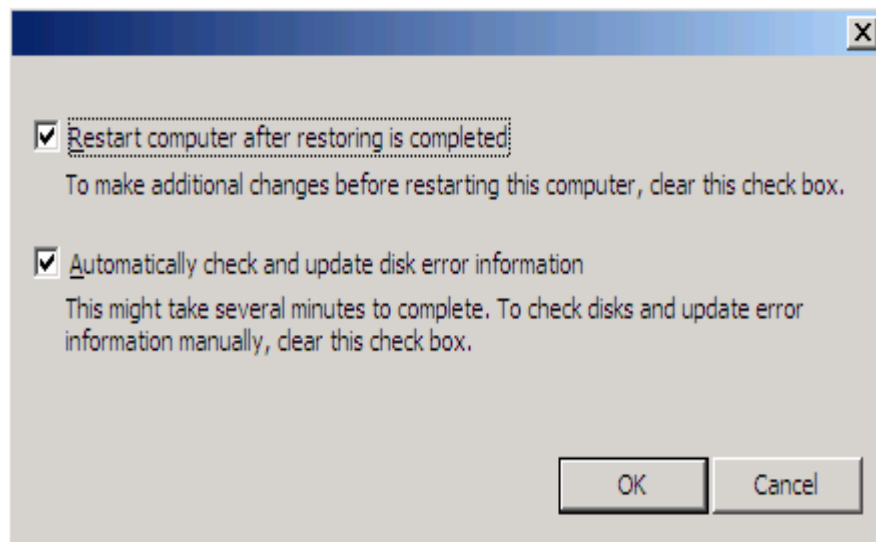


You are presented with the restore options.

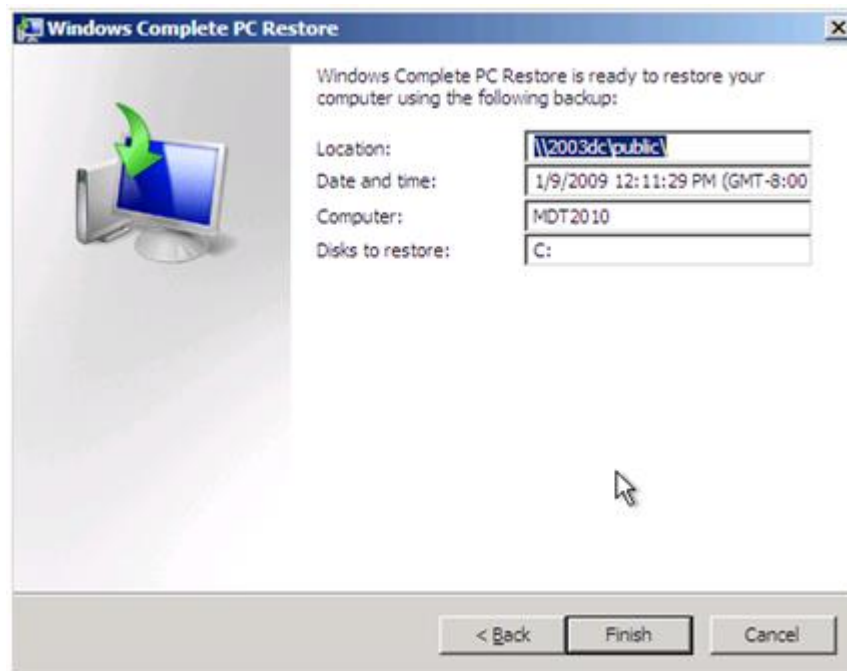


The exclude disks option enables you to exclude disks from the restore process.

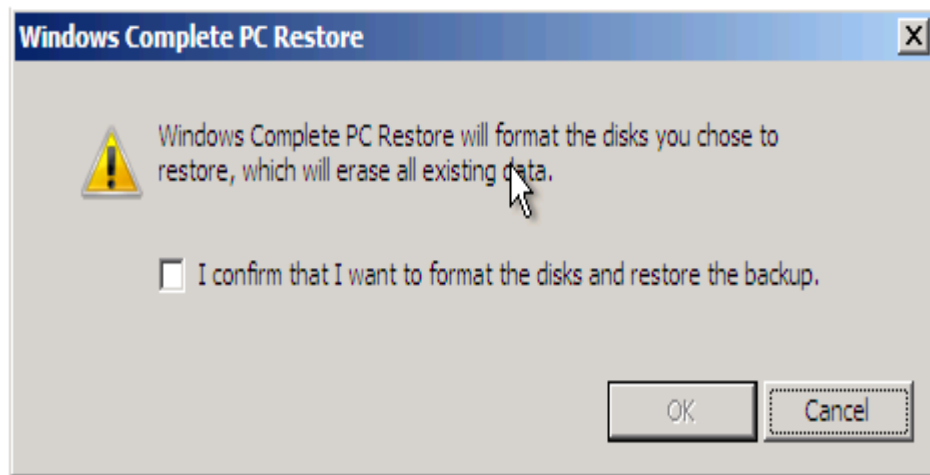
The advanced button has the following options.



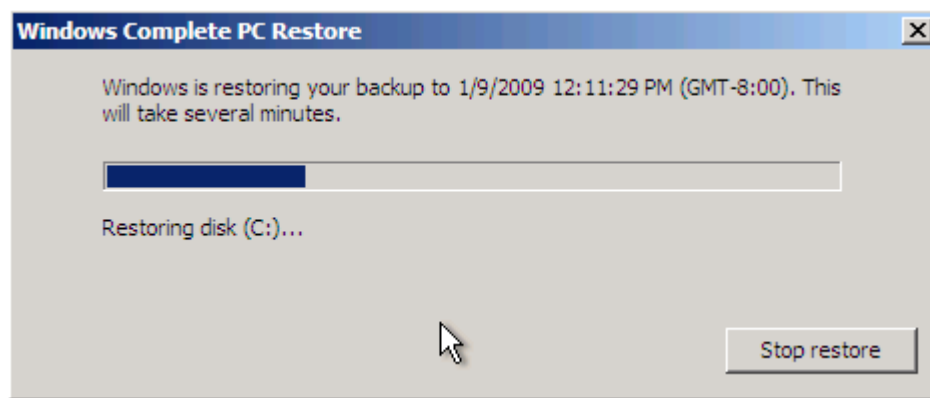
Click Finish to confirm the settings.



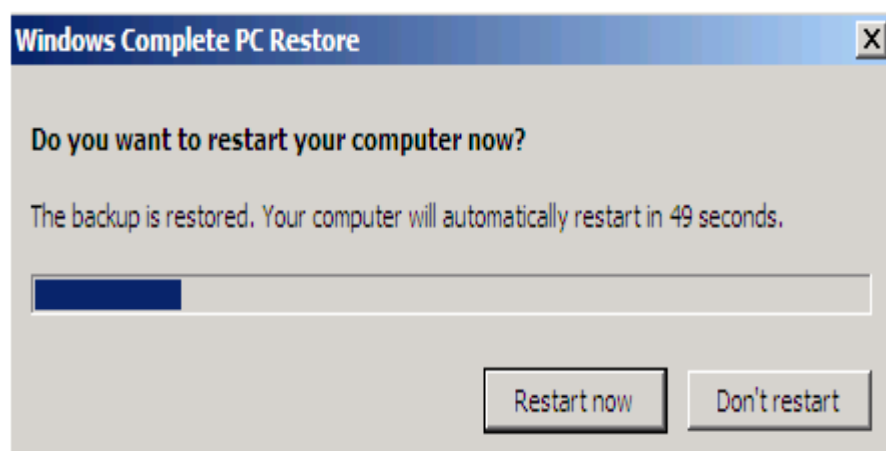
If you selected “Format and repartition disks” you are prompted with “Windows Complete PC restore will format the disks you chose to restore, which will erase all existing data”. Click “I confirm that I want to format the disks and restore the backup”.



You can monitor the progress through the final dialog box.

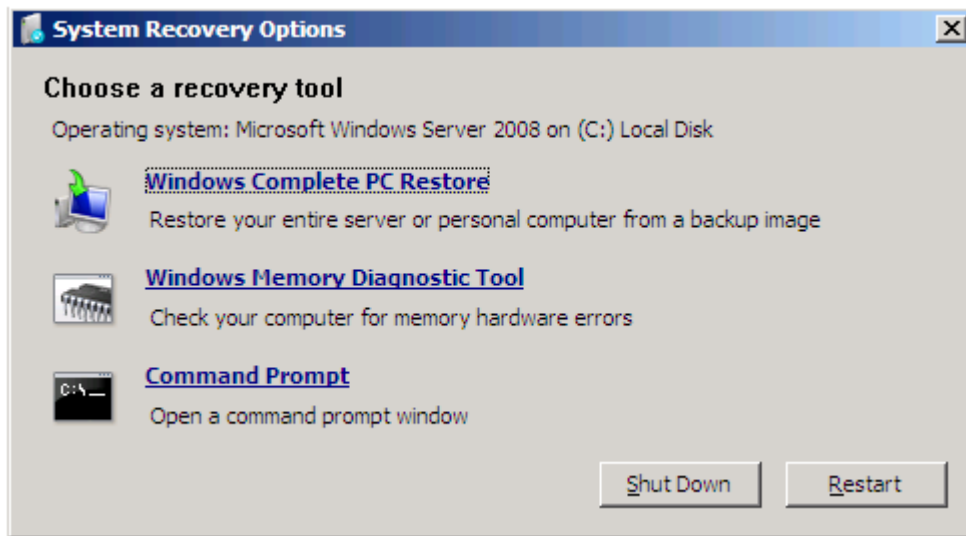


The restart will automatically occur or you can delay it.



For some scenarios, you may want to do this manually. The following lists the basic general steps to do this at the command prompt.

At the following screen select the “Command prompt” option.



The following subcommands for **wbadmin** provide backup and recovery functionality from a command prompt.

To configure a backup schedule, you must be a member of the **Administrators** group. To perform all other tasks with this command, you must be a member of the **Backup Operators** or the **Administrators** group, or you must have been delegated the appropriate permissions.

You must run **wbadmin** from an elevated command prompt. (To open an elevated command prompt, click **Start**, right-click **Command Prompt**, and then click **Run as administrator**.)

Subcommand	Description
Wbadmin enable backup	Configures and enables a daily backup schedule.
Wbadmin disable backup	Disables your daily backups.
Wbadmin start backup	Runs a one-time backup. If used with no parameters, uses the settings from the daily backup schedule.

Subcommand	Description
Wbadmin stop job	Stops the currently running backup or recovery operation.
Wbadmin get versions	Lists details of backups recoverable from the local computer or, if another location is specified, from another computer.
Wbadmin get items	Lists the items included in a specific backup.
Wbadmin start recovery	Runs a recovery of the volumes, applications, files, or folders specified.
Wbadmin get status	Shows the status of the currently running backup or recovery operation.
Wbadmin get disks	Lists disks that are currently online.
Wbadmin start systemstaterecovery	Runs a system state recovery.
Wbadmin start systemstatebackup	Runs a system state backup.
Wbadmin delete systemstatebackup	Deletes one or more system state backups.

Subcommand	Description
Wbadmin start sysrecovery	Runs a recovery of the full system (at least all the volumes that contain the operating system's state). This subcommand is only available if you are using the Windows Recovery Environment.
Wbadmin restore catalog	Recovers a backup catalog from a specified storage location in the case where the backup catalog on the local computer has been corrupted.
Wbadmin delete catalog	Deletes the backup catalog on the local computer. Use this command only if the backup catalog on this computer is corrupted and you have no backups stored at another location that you can use to restore the catalog.

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